AMERICAN GAS ASSOCIATION MONTHLY

Gas Produced or Sold in Important Countries of World—1928-1931

Gas Featured at Power Show

J. A. MALONE

The Gas Industry

GEO. B. CORTELYOU

Advertising from The Utilities' Viewpoint

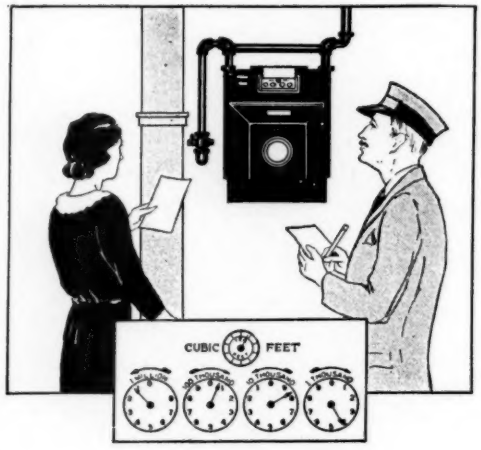
WILLIAM H. HODGE

Appliance Inspection and Adjustments

Active Preparation for A. G. A. Show at Chicago Exposition

February 1933

Let This Booklet Tell Your Customers How Their Meters Work



FACTS
ABOUT THE
GAS
METER

"TRUTHS About the Meter," proved one of the most popular publications ever produced by the American Gas Association. It was purchased in large quantities by scores of member companies and distributed to their customers.

Now the American Gas Association offers a revised edition entitled "Facts About the Gas Meter." Textually and typographically the work was redesigned, not only to bring it up-to-date, but also to modernize and make its appearance more attractive. It is just the thing for an envelope stuffer.

These new booklets are now available, in any quantity, at 2 cents a copy, including purchaser's imprint on the back outside cover on all orders of 200 or more.

If you haven't seen a copy of "Facts About the Gas Meter," ask for one. It will be mailed to you without cost.

The Second Edition
is off the Press

AMERICAN GAS ASSOCIATION
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Statement by John J. O'Brien

President, Standard Gas and Electric Company

THESE COMPANIES are now paying out in taxes from 10 to 15 per cent of their gross revenues with the trend still upwards. One-half or more of their expenses are capital charges, representing a limited return on actual investment. A small saving in the individual monthly bills of service users in the aggregate may be sufficient to destroy the financial stability of the average utility, inasmuch as such companies are not allowed to build up protective reserves in boom times.

COMMON STOCKS will bear the brunt of sharply reduced revenues due to losses in customers and heavy losses of industrial business. Inequitable rate reductions and losses in business would serve to cause interest defaults and the passing of preferred stock dividends. In turn this would cause further reductions in purchasing power on the part of millions of investors—a situation that certainly cannot better the general welfare.

INDISCRIMINATE CRITICISM of all utility holding companies is unjust. The majority are standing up well during the vicissitudes of the present depression with, of course, unavoidable reductions in the return to holders of common stocks.

THE NEED OF THE HOUR, as I see it, is to maintain whatever is sound in our governmental and business institutions and methods, and by friendly, tolerant and constructive approach, seek to solve the difficult problems before us.

AMERICAN GAS ASSOCIATION MONTHLY

Allyn B. Tunis, Editor

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Appliance Inspection and Adjustments

VERY admirable inspections and surveys of consumers' meters and appliances were made in Chicago, Denver, San Francisco, Atlanta and many other cities and towns where there were changes from one type of gas to another type of gas served. Similarly, there was the complete readjustment of appliances in New York City on the occasion of their step by step change in British thermal unit standard some years ago.

Feeling that complete inspection and adjustment of customers' appliances, regardless of size, is most important in the matter of satisfactory service and of public relations, and believing that the job can be most satisfactorily done under the supervision of an individual whose sole duty it is to inspect and adjust gas appliances, the New York Power and Light Corporation made a test inspection and adjustment of a large group of domestic customers to find out the actual facts regarding condition and cost of service. Ninety-five per cent of the customers required appliance adjustment of some sort.

It was found that if this periodic inspection of domestic equipment, other than automatic water heaters, were conducted on a five-year basis the total cost of training the crews and supervising them would amount to one-fourth of one per cent of the gross revenue. Offsetting this small item of expense, there could be listed in the asset side of the ledger of the company performing this work, in large type, an item for improved good will, an item covering the knowledge that the customers were receiving the maximum value for every dollar they spent for gas, and an item covering a steady stream of new prospect names for every manner of domestic appliance. This will prove to be a valuable weapon in combating competition whether it be from oil or electricity in the domestic field, or from oil cooking in the commercial field, or in whatever form competitve interests attempt to make inroads in the sale of fuel service to customers that logically should be permanent good friends of the gas company.

The minimum inspection schedule to properly achieve the results aimed at varies with the type of appliance. The following schedule is in use:

Inspections should cover the following minimums:

1. Automatic Gas Water Heaters—Annual Inspection:
   - Inspection to be made by Service Department.
   - Clean the outside of burners and coils.
   - Clean burner screens and mixer tube.
   - Adjust burner and pilot to proper cubic feet of gas.
   - Adjust air mixer to give proper combustion.
   - Adjust safety pilot.
   - Check flue for correct draft.
   - Check water temperature.
   - If storage heater, drain sediment and instruct customer to drain regularly.
2. Commercial Gas Equipment Inspections:
   Inspection to be made by Commercial Department.

(Hotel and Restaurant) Users of	*Inspection Interval*
Less than 25 M cu.ft. per mo.	1 year
25 to 50 M cu.ft. per mo.	6 months
51 to 100 M cu.ft. per mo.	4 months
101 to 200 M cu.ft. per mo.	2 months
201 M cu.ft. and over per mo.	1 month

   - Adjust and regulate burners.
   - Check automatic equipment.
   - When improper application or faulty equipment is found, the Commercial Department will contact the customer and advise the necessary remedies.
3. Industrial Gas Equipment Inspections:
   Inspection to be made by Commercial Department.
4. Domestic Gas Ranges and Tank Water Heaters:
   - Complete periodic inspection every 5 years, or at time of other service or inspections at same customer's address.
   - Inspection to be made by Service Department.
   - Adjust and regulate burners.
   - Check automatic equipment.
   - Where application is improper, or where repairs are required in excess of the value of equipment, such information will be forwarded to the Commercial Department, who will contact the customer.
5. House Heating:
   Three inspections per year.

Follow-up Work Necessary

Detailed instructions were given in each district to service men and commercial men so that they would be thoroughly familiar with the fundamental aspects of the utilization of gas, including combustion and adjustment of burners. It appears that there were no manuals available for this sort of instruction and all the material was developed on the ground.

In order to assist the inspector, a form similar to that shown in Figure 1, has also been prepared. This will be amplified and changed as experience is gained in the actual application of the blank.

The question will naturally arise as to how much is done in the replacement of such parts as broken cocks, fittings or burners which are in such state that they cannot be properly adjusted without danger of damaging them or having them fall apart on one's hands. New parts will be required for obsolete makes of equipment, which it will be impossible to supply. In many cases complete replacement of equipment may be required. This problem will be met by temporarily putting an appliance in the best possible condition, making out a report and turning it in to the commercial department with complete information so that this customer may be followed up for the proper and complete solution of his problem.

Wherever possible the service man leaves a copy of a modified edition of *Household Hints*, originally developed by the American Gas Association. The most striking modification, and the one which is particularly called to the attention of the customer, is the following page:

GAS APPLIANCE INSPECTION

Pole No. Avenue

Address No..... Street..... Name.....

Domestic Inspection..... .....Adjust and Regulate—Check automatic equipment

Appliance	Kind	Age	Condition
.....Hot Plates			
.....Range			
.....Automatic Water Heater			
.....Tank Water Heater			
.....Non-automatic Water Heater			
.....Space Heater			
.....Other Appliances			
.....Remarks on service work done			

Water Heater Inspection..... If completed check.....

1. Clean outside of burners and coils .....
2. Clean burner screens and mixer tubes ..... If storage
3. Adjust burner and pilot to proper cu.ft. of gas..... heater, drain
4. Adjust air mixer to give proper combustion ..... sediment and in-
5. Adjust safety pilot ..... struct customer
6. Check flue for correct draft ..... to drain regu-
7. Check water temperature ..... larly
8. Is flue in good condition ....

Prospect for

Remarks of Customers

General Remarks

Date..... Inspector.....

Figure 1

Effect of Careful Operation of Gas Burners on Gas Consumption—From Technologic Paper No. 222—U. S. Bureau of Standards

Many cooking processes require the heating of the water in the utensil up to boiling and the maintenance of the boiling temperature (212° F.) thereafter until the food is completely cooked. Some people forget or do not know that water cannot be heated to a temperature higher than 212° F. at atmospheric pressure, and that violent boiling does not accelerate the speed of cooking. It only evaporates water needlessly, wastes gas, and causes the consumer to complain of high gas bills.

Some idea of the difference between careless operation and careful operation of an appliance can be gained from the following important conclusions drawn from tests made by the U. S. Bureau of Standards:

1. With a lid on the utensil, violent boiling (gas on full) consumes about nine times more gas than is necessary to maintain gentle boiling.
2. For gentle boiling about five times as much gas is used with the lid off as would be required if a lid were on the utensil.
3. When violently boiled, the water evaporates at about the same rate with the lid on as with the lid off.
4. Gentle boiling evaporates water about six times as fast with the lid off as compared with the lid on.

In the case of industrial inspections, a copy of the inspection report and the work done is sent to the head of the company as well as to the man in immediate charge of the equipment. It is felt that only in this way, will the greatest benefit from the inspection of our industrial appliances be derived. If the inspection is simply left in the service department's hands and a fitter enters a plant by the back door, goes to the appliance and talks to the man who operates it, makes such changes and adjustments as are necessary and walks out again, the officials

(Continued on page 74)

The Gas Industry*

By Geo. B. Cortelyou

President,

Consolidated Gas Company of New York

IN accepting, about a year ago, Dr. Hibben's invitation to appear before you this evening, I was sensible alike of the honor and of the responsibility conferred upon me. This feeling has deepened as I have become more and more impressed by the background of the distinguished Brackett Lectureship at Princeton University, under whose auspices this address is delivered.

In 1832, as so many of you know, there were performed experiments on the Princeton campus that were to bring international fame to Joseph Henry. Within the past month the work of Henry has been given renewed recognition by electrical societies in the United States and his name and fame have again been literally broadcast throughout the nation.

During the 100 years which have elapsed since those experiments were made, we have a continuous link with Henry and with his scientific and experimental work at Princeton, through the life and work of Henry himself as Professor of Physics in your College of New Jersey at Princeton; and later in the work carried forward from 1873 to 1908 by Cyrus Fogg Brackett, scientist, physician, teacher and beloved friend, for whose memory the Brackett Lecturers—I can now speak as one—feel a bond of personal affection. You will recall that it was Joseph Henry who selected Dr. Brackett as the Henry Professor of Physics in what, after 1896, was known as Princeton University.

And now since Dr. Brackett's death, and in his memory, we of The Guild of Brackett Lecturers do honor alike to Henry and to Brackett whose work was a scientific contribution which was to form the basis of a branch of engineering today whose significance the world recognizes.

An intimate friendship existed between Dr. Brackett and Thomas A. Edison. The great inventor called upon him not once but many times for consultation on the technical and theoretical side of his inventions and experiments. With Professor Anthony, Dr. Brackett was co-author of Anthony and Brackett's Textbook on Physics, which was used in American colleges and universities and technical schools during the 80's and 90's. When we remember that Dr. Brackett also had an international reputation in the field of medicine, and that for 30 years prior to his death he was President of the State Board of Health in New Jersey, we get some idea of the many-sided character of this remarkable man.

In that fine appreciation which your former Dean, Dr. Howard McClenahan, now the Director of the Franklin Memorial Museum at Philadelphia and the Secretary of our Guild, has written of Dr. Brackett, I learn that he was born 100 years ago this year.

My subject this evening has been assigned by Dean Greene, who has asked me to tell you something about the gas industry and, as he outlines it, "present a picture of this enormous public utility which, in the face of electrical competition, has increased its production."

Appearing here as a representative of the gas industry may seem to put me in a somewhat anomalous position, because I happen to be President of the National Electric Light Association—an organization devoted to the interest of the electrical industry; and you might well ask, by what warrant do I undertake to speak for the sister industry? The answer is in part, at least, that for two and a half years I had the honor to serve as President of the American Gas Association and further that the company with which I am associated—the Consolidated Gas Company of New York—produces both gas and electricity—is what is called a combination company. It has been estimated that approximately 40 per cent of the total output of manufactured gas in this country comes from combination companies. A little more than 10 per cent of the total comes from the gas companies in the Consolidated system, whose operations are confined entirely to the State of New York.

Geo. B. Cortelyou

A Major Utility

Today the gas industry is one of the major public utilities and is engaged in furnishing a substantial part of the heating requirements of home and industry.

The total investment in the manufactured gas industry amounts in round numbers to $2,500,000,000; the total quantity of gas sold in 1931 was 391,200,000,000 cubic feet with a value of $435,390,000, a decline in revenue of 2.5 per cent from 1930. According to preliminary estimates of the American Gas Association, the revenue from gas sales in 1932 was $413,250,000, a decline of 5.1 per cent from 1931. Revenue from sales of natural gas for 1931 amounted to $392,156,000—5.6 per cent below 1930, while it is estimated that the revenue for 1932 declined 16 per cent from 1931. However, I do not propose to quote numerous statistics and a great variety of miscellaneous technical information. To do so would be contrary to what I understand to be the purpose of the Lectureship, which encourages wide latitude and diversity and seeks to avoid detailed technical discussion.

A modern engineering education, as

*Address before Princeton University in the Cyrus Fogg Brackett Lectureship in Applied Engineering and Technology, January 10, 1933.

I conceive it, consists in part of a thorough comprehension of the related natural and physical laws and all the basic and fundamental factors which control, together with a trained ability to know where essential information may be consulted, and how to use it.

There is another and not quite so tangible—but none the less important—side of engineering. Dr. Potter, Dean of the School of Engineering, Purdue University, in an address in 1925, speaking of engineering and human welfare, said: "Engineering strives to provide better and easier ways of satisfying human needs. During the last twenty-five years science and engineering have richly contributed to human welfare by elevating social conditions and improving standards of living." Dean Potter went on to quote Calvin Coolidge before the American Association for the Advancement of Science when he said: "The future of civilization is well nigh in your hands. . . . We know you are animated by a profound purpose to better the estate of men."

It was a coincidence that during the time I was assembling data for this lecture it was announced that Dr. Potter had been elected to the presidency of the American Society of Mechanical Engineers. He succeeded an able public utility executive, Conrad N. Lauer of Philadelphia, President of The Philadelphia Gas Works Company, who, as you recall, delivered one of the 1923-24 Brackett lectures on "Engineering in American Industry."

With these thoughts in mind, I plan to present a general description, containing a minimum of details, of the origin and growth of the gas industry; and my remarks will be confined almost wholly to manufactured gas, as that is quite sufficient to engage our attention for one evening. In many respects, apart from the matter of production and, to a limited extent, transmission, the distribution and utilization of manufactured gas and natural gas are not dissimilar.

The early alchemists and scientists played an important part in the discovery, development and adaptation of manufactured and natural gas: Jan Baptista van Helmont, a Belgian, in 1609, used the name "gas," said by some to have been derived from "geist" meaning "wild spirit" and by others as meaning "ghost." An English minister, the Reverend John Clayton, about 1665 heated and gasified bituminous coal. Fortunate indeed the gas business has been in that during its early development the discoveries of so many eminent scientists were applicable to the rapidly expanding industry. One ardent student of the newly discovered gas was Robert Boyle, well known to all students of chemistry and physics as the author of "Boyle's Law," which must always be taken into consideration in connection with gas volumes and measurement. There was also Joseph Priestley, the English chemist, who contributed so much to the discovery of oxygen; he was a minister of the gospel and died in this country in 1804. To Priestley the gas industry is indebted for the water lute or seal used today in much of its production equipment.

Ancients Knew Natural Gas

Other noted contemporaries were Cavendish of hydrogen fame, and Lavoisier, who was guillotined during the French revolution. From their first simple experiments in attempting to determine the composition of water by analysis came the fundamental principle of water gas production.

As for natural gas, it is generally conceded that the ancients possessed considerable knowledge of its occurrence and that the Chinese early piped natural gas through bamboo tubes. The famous Grecian oracle of Apollo at Delphi is said to have relied upon the phenomenon of burning natural gas. In this country natural gas was first used for lighting in Fredonia, New York, in 1824.

The first really practical application of manufactured gas was at Redruth, a little town in England, where in 1792, William Murdock—generally known as the father of the gas industry—lighted his home with gas produced by the distillation of bituminous coal. Others followed and individual plants for lighting stores, homes and factories were constructed in England, France and this country. David Melville of Newport, Rhode Island, lighted his house and the street in front with gas of his own manufacture about 1812. By its use he also lighted a cotton mill at Watertown, Massachusetts. The first city in the United States to have a gas lighting company was Baltimore, in 1816.

In 1823, the New York State Legislature granted a charter to the Gas Light Company of the City of New York; a few weeks later the Common Council of the City of New York granted permission to lay mains in the city streets. Work went on apace, materials and equipment being imported from England, and in March, 1825, gas first was used in New York City. At that time our present great metropolis consisted of several villages and many farms containing an aggregate of 120,000 inhabitants. As of December 31, 1931, there were no less than 1,964,585 meters through which 65,600,534,000 cubic feet were sold in 1931 in the boroughs constituting Greater New York, with a population of more than 7,000,000 persons.

As you know, the early gas applications were for lighting and the cities were especially interested in street illumination. In 1826 there was initiated a quaint custom in the City of New York which continues to the present time,—the maintenance by the City of the lights at the entrance to the home of its Chief Executive. The first Mayor to be so honored was Philip Hone, who lived on the site of the present Woolworth Building.

The gas production plants of those times were all manually operated and long working hours were the order of the day. There developed a new type of worker, an admirable combination of brain and brawn. In later years, as machine displaced hand labor, the gas industry attempted to pay some small tribute to him. His virtues were immortalized in a poem written by another much respected gas man, Walton Clark of Philadelphia. Mr. Clark took as his title a phrase for which the industry has always had a sentimental fondness—"The Gas House Terrier." I quote two of the verses:

He was a grimy Terrier from the gas house down beyant.
Of chemistry and algebra his knowledge true was scant.
But he'd a horny fist and an honest face and the grit of a brindled pup.
He didn't go much on photometry, but he kept his holder up.

* * * *

As we welcome the logarithmic boy,
with his tubes and his chemical stuff,
Let us not forget the Terrier lad, who
broke the way when the way was rough.
Here's to his joy, wherever he goes, and
may never a fate be sweeter
Than his, when death cuts off his gas,
and Gabriel takes his meter.

Tribute to Employees

There is said to be something about the gas business that is conducive to longevity, just as there are supposed to be certain curative properties in the atmosphere of a gas works. However that may be, the fact is that among the working forces of most gas companies there is a liberal sprinkling of old employees who have spent all their working lives in the service. Forty, fifty, sixty years' service records are not uncommon.

The late John O'Connell, foreman of the 21st Street Plant of the Consolidated Gas Company of New York, was in active, continuous service for 72 years, which we believe is a record for the industry. This plant was renamed the O'Connell Plant in his memory.

And here is as good a place as any to pay tribute to gas company employees in general. No industry is better or more faithfully served by its employees than the gas industry. They do their work, often under conditions of great difficulty, with an efficiency that is none the less remarkable because it is quiet and unobtrusive, much of it remote from the public eye. The service must not be allowed to stop, even for an instant; when the public turns on the gas, the gas must be there. This unbroken continuity of service is symbolized by the fire which is carried from one plant to another as new operations are begun and which is never permitted to be extinguished. If I refer more particularly to practices and conditions in New York City, you will understand it is not because they are exceptional but because they are the ones with which I am most familiar.

As an illuminant, the new product became immensely popular and rapidly supplanted the candles and oil lamps of the period. The generally accepted theory of light production was that rich hydrocarbons of the coal gas were broken down by the heat and the resultant very finely divided carbon burning relatively slowly, produced a luminous yellow flame. The original burners were simple in form, of the open or flat-flame type. They were followed by the circular Argand burner, invented in 1784, with a wick to burn oil but later adapted for gas. Crude and simple as some of the burners were, nevertheless the new light filled a long felt want in the home, in the stores, and for street lighting. Here it was instantly welcomed by the peace officers as an aid in preventing robberies and in the apprehension of criminals.

A combination of Bunsen's nonluminous blue flame burner and Auer's mantle, a fabric impregnated with rare earths which glow when heated, was announced in 1886 and gave us the upright Welsbach incandescent mantle burner about 1890; a few years later the inverted mantle shadowless burner was introduced. The adoption of the incandescent mantle burner marked two important and closely associated epochs in the gas industry. In the first place, Edison's newly invented light, an aggressive competitor for the lighting business, was rapidly making its presence felt and the pessimists of the day predicted short shift for the gas industry. But there was ready to hand the incandescent mantle burner, and for many years the gas industry not only held its own but materially increased its output.

The second important point with regard to the mantle burner was that its introduction created an entirely new conception of gas—as a fuel. The gas business eventually had to concede the loss of the greater part of its lighting to the electric industry, but the use of gas for heating made rapid strides and more than made up for the loss of the lighting load.

During its earlier years, the industry relied almost entirely upon coal gas, produced by distillation of selected bituminous coal. This continued as the standard production process until 1873 when there was introduced an American invention, the work of Thaddeus S. C. Lowe. Here again the history of gas development in Europe repeated itself in the United States in that one of its principal inventors was a man of many talents. Professor Lowe, during the Civil War was chief of the United States Aeronautic Corps and was frequently alluded to as the "Aeronaut of the Potomac." He made innumerable balloon ascensions, and invented several instruments, including an altimeter. It is said he had in mind the construction of an airship to cross the Atlantic. Among his inventions was the first compression ice-making machine, in 1865. Lowe caused the simple chemical reaction between incandescent carbon and steam to take place in suitable vessels; with oil gas added came carburetted water gas as we know it today. There have, of course, been many improvements, but the fundamental principle remains the same.

It is apparent that operating control cannot be had nor economies practiced unless volumes are known, and accordingly gas is measured as made. However measured, a cubic foot of gas is a cubic foot only under standard conditions. All volumes are therefore corrected to normal temperature and pressure.

The nature of the processes employed in the manufacture of gas, coupled with the characteristics of its use, necessitated employment of the storage holder. Today we have several types and there are three with which you are probably familiar, since one or more may be found in every city where gas is manufactured. The first was known as a gasometer and was invented by Lavoisier in 1782; a few years later the telescopic holder was introduced. It is not unlike an inverted collapsible drinking cup and operates by means of water seals and a simple locking device around the circumference of each section. The water-less type is a relatively recent invention and may be likened to the piston of an engine and has equipment not unlike a piston ring as a seal. The other is the cylinder or sphere "packed" with gas under pressure.

The largest holder in the world is of the water-less type and has a capacity of twenty million cubic feet. It is 283 feet in diameter and 416 feet from the ground level to the apex of the main structure; 70 feet above this is a light tower to guide aviators flying by night. For day flying the top of the holder carries directional information in paint specially selected for visibility. This is a common practice wherever large holders are ad-

jacent to air fields or near established air ways.

Meter Invented in 1815

From storage the gas is conducted throughout the district of supply by a suitable underground system of mains, mostly cast iron and steel; a variety of joints is employed. Pressure is controlled at all hours of the day and night by automatic governors and may originate from the weight of the holder, or a pressure "booster" or pump may be installed.

Gas is conducted directly from the distribution system by lateral pipes into the premises of the customer and to these service pipes meters are attached.

The meter was invented in 1815 by Samuel Clegg—one of the great names in the history of the gas industry—but before it came into general use customers were warned by a watchman whenever they burned gas beyond certain designated hours. In the earliest type of domestic meter, known volumes of water were displaced by gas. A few years later the dry meter was introduced, containing two diaphragms, two slide valves and a dial, substantially the same construction being in use today. In addition to being the father of the gas industry, some historians ascribe the invention of the "D" slide valve to William Murdock, who for some years was associated with Watt of steam engine fame.

The increased number of gases available in recent years has necessitated determination of their qualities and characteristics when mixed and their effect upon the operation of installed appliances. Accordingly several years of research have been devoted to 250 different mixtures requiring more than 175,000 separate tests, to determine the controlling factors for efficient utilization in the customer's equipment.

You doubtless will have appreciated that much auxiliary equipment is necessary for handling and processing raw materials and by-products. In the design, construction and operation as well as maintenance of such equipment, mechanical engineers have a very definite place; control of purchases and operation, together with production research, is largely chemical. The thermal efficiency of gas production by each of the processes at present in use is relatively high.

Having followed me so far you will realize, I hope, that I have attempted to paint a picture of the gas industry with broad strokes. Together we have glanced at its history and development during 140 years and brought our product up to the meters of our customers. With your permission, I suggest we leave it there while we consider some other matters and then discuss its ultimate utilization.

As engineers, I am sure you will agree that for the purposes of this discussion there is a very real line of demarcation at this point. Up to the customer's meter the greater part of the operating procedure is of an engineering nature. Beyond the meter, while engineering enters into the picture, there are many other factors. The most important is inherently fundamental, the fact that from the customer's meter on is where sales begin and competition enters.

Regulation

The gas business is a regulated one and its profits are limited by law. In all of the states, with the exception of Delaware, the legislatures have created public service commissions or boards to administer their regulatory laws. There are, including the District of Columbia, 48 railroad and public service commissions with jurisdiction of varying degrees extending over one or all of the basic public utilities represented by the electric light and power companies, gas companies and other utilities.

These regulatory bodies mostly have jurisdiction over rates, service and the issuance of securities. In many states no new utility can begin business without first securing the approval of the commission. The order and decisions of these commissions are subject to review by the courts of the respective states, as well as by the federal courts upon certain constitutional questions, up to and including the court of last resort, the Supreme Court of the United States.

The gas industry is sometimes said to constitute a monopoly. It should, however, be apparent that this is true only in so far as one company to a community is concerned; that is, it is protected, as a rule, from the competition of other gas companies in the same territory. But it still must face the opposition of competing products such as electricity, coal and oil, all striving for some part of the fuel market. The only monopoly the gas industry ever truly possessed lay in the fact that its product was superior, first, to the lighting methods it displaced prior to the advent and acceptance of Edison's invention, and, second, to the heating methods it displaced after its exclusion from the lighting field.

The avoidance of expensive duplication of production and distribution facilities, of ruinous rate wars and of widespread confusion, all justify the wisdom of modern legislative policy which permits but one utility system to serve a given community.

Here is how the consequences of the wasteful duplication which prevailed in the early days were described at a Parliamentary Committee hearing some years ago in London: "As and when a leak took place, Company A came along and pulled up the street to get rid of the leak, and having discovered to its satisfaction that the leak was not from its pipe, the street was relaid; then came along Company B which opened the street, and if to its delight it found the leak was not from its pipe, it closed up the street again; and then along came Company C, which did the same thing; so the result was, of course, that dissatisfaction became very great."

Referring further to the situation when competition between companies prevailed, the speaker went on to say: "The period of competition existed from early in the last century, say, 1812, down to 1860. In the early days the supply of gas was regarded as highly speculative; there were people who then regarded those undertaking the supply of gas as lunatics, and various towns were plastered with notices warning the public against this ridiculous suggestion of supplying gas or inflammable air."

The reference no doubt was to Frederick A. Winsor, a contemporary of Murdock, whom I have already mentioned, and Lebon, who had been working in Paris along lines similar to Murdock.

To help him in his campaign for financial support for his promotions,

Winsor drew up a series of questions and answers designed to illustrate the advantages of gas. One question and its answer was as follows:

"Question—Do you apprehend much opposition?

"Answer—Not from *sensible* and *enlightened* persons; but I am fully prepared to meet and refute all *obstinacy, prejudice, ignorance* and *malice.*"

Winsor was the promotor of the new industry and of the National Light and Heat Company; but his claims were extravagant, the promised profits were impossible and the money raised by subscription was squandered.

A Prophetic Jest

Even Sir Walter Scott, who in spite of his literary activities found time, in 1803, to preside as Chairman of the Edinburgh Oil Gas Company, wrote of Winsor: "There is a madman proposing to light London with—what do you think? Why with smoke!" How many a true word has been spoken in prophetic jest! Scott of course was familiar with what the men of all nations have known since our forefathers first learned to use fire for warming their bodies, cooking their food and forging their weapons, that smoke was a necessary accompaniment of fire. One of their chief concerns was to utilize the comfort and convenience of their new servant by retaining the fire and removing the smoke. Down through the ages from the time of the earliest flue, probably a natural chimney up through the rocks of the cave dwelling, or the hole in the roof of the hut or tepee, the smoke problem was ever present. It was recognized by law in 1273 when London passed the first smoke ordinance and forbade the use of coal within the City.

In the combustion of gaseous fuels fire is obtained without smoke. Coke is another smokeless fuel, the chief by-product of coal gas manufacture, sometimes known as "man-made anthracite." It is a striking commentary on Sir Walter's exclamation that the product which eventually lighted, and still largely lights, the City of London and the homes of its citizens, was that part of the coal which he knew as smoke, distilled and otherwise processed so that it became invisible. The modern high pressure street lighting of London, with incandescent mantle burners, and its newer gas flood lighting, are a revelation to visitors unfamiliar with this application. The smoke problem is still with us and I am sure that you all know its evils, that smoke increases sickness, restricts sunlight, intercepting its most valuable rays, and intensifies fogs. There are many other counts which must be included in the indictment of this depressing and expensive by-product of modern civilization. The gas industry has done much for the common welfare in conservation of natural resources and in the elimination of smoke and its cohorts, darkness and disease. We confidently expect it to accomplish far more, for in spite of its age, in many aspects of complete utilization it is still in its infancy.

The records disclose that Edison was a keen observer of the gas industry both with regard to its technique of distribution as well as its place in the national economy. After completing the invention of a successful incandescent electric lamp in 1879 he stated that his main purpose was to create a lamp which could be turned on and off much as is done in the case of a gas jet. He then proposed to develop central electric generating stations and distribute the electricity through underground wires to customers. Here again he set the methods of the gas industry as his model.

Edison also believed in the superiority of electricity to gas as an illuminant, but with penetrating foresight he perceived that the loss of the lighting business was not necessarily fatal to gas because there were other uses which offered it even greater possibilities. One of his early notebooks contains the following prophetic entry: "Gas will be manufactured less for lighting as the result of electrical competition, but more for heating, thus enlarging its market and increasing its income."

Civilization's Twin Props

Today, gas and electricity, when properly coordinated and correlated, supplement and reinforce each other in supplying energy in the form of heat and light, the twin props of our modern civilization. Where they come into competition, it should be possible by the application of economic and engineering principles, to determine the natural line of cleavage between them so that each may do the work for which it is best fitted. Thus the maximum beneficial use of each will be served.

From its inception the gas industry has functioned in all of its activities according to specifications and standards. Most of them, relating to quality of service, were originally self-imposed and later incorporated into the requirements of the regulatory bodies as they were organized. Instruments of precision and their exact operation have been known and used by generations of gas operators and include among others the wet and dry meters, photometers and calorimeters.

The industry is so firm a believer in the use of standards and specifications in connection with its raw materials and ultimate product that it also requires their use for the utilization equipment it sells to its customers.

Many of the larger companies maintain utilization laboratories and the industry supports a central testing laboratory. Appliances, principally domestic at present, which bear the approval seal of the American Gas Association must have complied with comprehensive specifications of construction and performance, the latter particularly with regard to safety and economy. The assistance of representative national organizations including interested governmental agencies, is had in preparation of the specifications, all in accordance with the established procedure of the American Standards Association.

In a somewhat quiet but none the less effective way, the industry is utilizing that great industrial tool, research, in seeking new applications for its product. Among the many interesting uses for gas which have passed the experimental stage are refrigeration and air conditioning. Both are based on an ingenious application of fundamental chemical and physical laws, with gas furnishing the essential heat.

Even when this convenient and desirable fuel has been brought within the walls of the home or factory, much remains to be done to induce its full acceptance and use. Gas companies have found, in common with the pro-

ducers of many other commodities, and even necessities, that organized sales work, not only of their own, but in cooperation with merchandising organizations other than their own is essential. Modern American life, whether in the home, apartment, or hotel, is highly complex and served by many besides the classic "butcher, baker and candlestick maker." Gas has to contend with the ever-changing habits of the consumer. The small apartment, the popularity of the commercial laundry, the bakery, the restaurant and the delicatessen all tend to hold down the sales of gas for residential purposes.

Good Dealer Relations

The man who does much of the physical "tie-in" between the service of supply and the point of utilization represents a profession which goes back even further than the era of guilds and apprentices. He has always been associated with our most ancient utility service, that of water supply, and has a splendid record for improving the public health and lengthening life by promoting up-to-date sanitation. Good working arrangements prevail between progressive gas companies and these valuable dealer and plumbing contractor agencies. In the companies with which I am associated we have found that cooperation with plumbers, hardware dealers, steam fitters, heating contractors and others resulted in increasing by more than fifty per cent the total amount of appliance business through dealer channels. Certainly the industry, if its sole activities had been confined to gas production, could never have developed much of the modern equipment in which research has had so important a part and no other agency could have underwritten the developmental expense.

As gas can be used only by means of an appliance, it follows that the manufacturers of gas appliances have a vital relation to the progress of the industry. From their designers and research laboratories have come efficient, safe and attractive equipment of the most modern type for use in home and factory.

The past decade has witnessed a concentration of capital resources and management control out of which has arisen the holding company, a device by no means peculiar to the utilities but employed extensively by many other industries, and even by the government itself. While there have been mistakes and excesses, which the utility industry neither condones nor defends, nevertheless the holding company continues, as it has in the past, to serve a useful purpose. Legitimately used it is an efficient tool for strengthening, bettering and cheapening utility service.

Addressing investment bankers recently, the president of a leading financial organization said: "The holding company as applied to the public utility industry probably has been one of the major factors resulting in the phenomenal growth of the industry. Without this form of corporate organization the continued trend to lower rates and better service might well have been materially retarded.

"Funds could not have been provided in sufficient quantity at low enough cost to permit expansion and improvement of the facilities of countless small local operating organizations, with the resulting decreases in rates. . . . Many examples abound today of holding companies which were, and are strong, solvent and essential to the industry."

Now, if you please, let us return to the outlet of our customer's meter and consider, among other things, what we have there, for what it may be used, what are its advantages and characteristics and how the price at which it is sold is to be determined.

Absolute Atmospheric Control

First, we have a fuel from which all impurities and extraneous matter have been removed. It has been brought underground, and so out of sight, directly from its point of origin and conducted to the exact place it is to be used. Requiring no further modification it needs only to be ignited in order that it may function and render its appointed service. No storage is required where it is to be utilized, the supplying organization having, as far as the individual customer is concerned, practically unlimited capacity to continue the supply. Fully automatic service with regard to ignition, temperature and time control is at the instant command of the customer. Of special interest to the metal worker is the absolute atmospheric control right at the point of heat application. Gas utilization may be conveniently visualized by considering three classifications of service: domestic, commercial, and industrial. The first, embracing home use, includes principally cooking, water heating, refrigeration, central house heating and the use of incidental space heaters. Similar applications, but on a much larger scale, such as those for hotels, restaurants and bakeries, constitute the second or commercial classification. All utilization for other than domestic and commercial purposes is generally considered industrial. Statistics of the manufactured gas industry for 1931 show that the ordinary domestic uses, including house heating, accounted for 76 per cent of the total gas sold and that approximately 81 per cent of the revenue received was in payment for these same uses, mostly cooking, water and space heating—once luxuries, but now everyday necessities. The remainder was principally for industrial and commercial use. Wherever heat is a requirement there may be an actual or potential gas customer. Lowering unit costs and simplifying plant operations are two of the most important services gas offers to industry. The number of industrial applications runs into the thousands.

As far as the fuel itself is concerned, it will be of uniform quality and will comply with prescribed heating value requirements. It will be entirely invisible and if without a characteristic odor by which its presence may be detected, modern research has developed strongly odorous agents, generally chemical compounds, which may be mixed with such gases prior to distribution.

In arriving at the price for which gas is to be sold there are many matters which must be taken into consideration. In the first place, the public utility industry differs from others in that a manufacturer may turn his capital over from two to four times a year, and a merchant from five to ten times, a gas company turns its capital over only once in three and one-half to five years, requiring from $3.50 to $5.00 of investment for every dollar of gross annual income. It is obvious

therefore that the public utility must make careful studies of its property and other assets, along with its operating costs, in order to secure a fair return upon the capital invested.

The principal requirements of reasonable rates are that they shall be such as will earn a sum sufficient to meet operating expenses for labor and material; make necessary retirements and repairs; create requisite reserves; pay the numerous taxes assessed by local, state, and national governments, and provide adequate compensation to the owners of the property "devoted to the public service."

Assuming the value of the property devoted to the public service has been determined, and considering this sum as the rate base, it follows that the sum of enumerated items constitutes the required annual revenue. This amount divided by the total quantity of gas sold produces what is generally known as a "straight line meter rate." An extreme example was the rate in 1826 in the City of New York which was $10 per thousand cubic feet. At a period when gas was used entirely for lighting and the community and customer characteristics did not sharply differ, such a form probably was not inequitable.

"Scientific Rate Structure"

It became obvious, however, as gas was used for numerous additional purposes and under varying conditions and hours of use, that the straight line meter rate was archaic, inequitable and a distinct deterrent to increased sales of gas. As a result of rate pioneering work undertaken several years ago, there is a growing recognition of the necessity for what is sometimes called a "scientific rate structure." Comprehensive analyses of the costs involved are essential, but while it is impossible adequately to cover here the subject of rates and rate making, it may be stated that such analyses frequently segregate the four basic groups of production and distribution demands, and customer and commodity costs.

Efforts to secure recognition of the fact that each customer should be charged relatively what it costs to serve him with regard to his demand have resulted in a multitude of rate forms for definite classes of service.

The gas industry is gradually formulating its rates upon sound economic principles and with recognition of the competitive aspects involved. It is enlarging its markets by the acquisition of house heating, large volume water heating and by increasing the use of gas for industrial and commercial purposes, largely as a result of more modern rate structures, which in the final analysis mean lower rates for everybody.

The burden of taxation continues on an ever ascending scale caused by the rapidly increasing expenditures of federal, state and local governments. Nation-wide volume of business transactions has declined, while the oppressive burden of taxation has continued to increase. The cost of public utility service is directly affected by this trend, as the increasing burden must necessarily be borne by the customers in the rates charged for the service. The taxes assessed against the companies with which I am connected were equivalent in 1931 to an annual average charge for each customer's gas meter of $4.72. Considered in relation to earnings, for the entire system, the taxes of 1931 absorbed 26.96 cents of each dollar of net earnings.

Speaking at the last annual convention of the American Gas Association, the president of that organization, Mr. R. W. Gallagher, said: "We now pay ten cents out of every gross dollar we earn in taxes, national, state and local, and this in the face of the fact that we are highly competitive with every other form of fuel not one of which is relatively so highly taxed."

There is another side to public utility service which is sometimes overlooked. This relates both to quality and continuity of the service rendered, as well as to customer satisfaction with any appliance which the gas company may have sold, covering the broad field of public relations. The gas company lives a long time with its customers, who hold it—very rightly in my judgment—strictly accountable in such matters; and the progressive company accepts this accountability by carefully selecting and training all employees whose work brings them in contact with the public.

It should be apparent, from what I have said that there are many ramifications of the gas industry, reaching far into the fields of engineering, economics, accounting, salesmanship and merchandising, including advertising, which cannot even be touched upon here. There is also the equally important financial and executive administration. I have endeavored, and I hope with some success, to paint the picture so that something of its proper perspective may be revealed. It is usually necessary to retire some distance in order that the relative proportion, as well as the importance, of component parts may be perceived. In a country and in an age so devoted to specialization as this, I commend such procedure in viewing the outline before us.

Nothing Suggestive of Decadence

It is impossible within the limits of an address such as this to refer in detail to all of the pioneers of the industry or even to its outstanding figures of more recent times, and I would not wish, by mentioning one such figure, to appear to slight any of the others who belong to this group. All have contributed in marked degree to the advancement of the industry and have laid posterity under a debt of gratitude to them. But I should like to tell you something about a notable gas engineer whose career extended into our own generation—the late William H. Bradley. I can speak of him the more freely because of my long association with him and personal knowledge of his sterling qualities.

Like Lowe, Mr. Bradley grew up with the gas industry in this country. Also like Lowe, he reached man's estate at the outbreak of the Civil War and he, too, rendered distinguished service to his country, for it was under his supervision that the "Monitor" was built in the shipyard of the iron works with which he was then connected. After the war, Mr. Bradley became active in gas plant construction, eventually entering the service of the Consolidated Gas Company of New York, of which he became Chief Engineer. His construction of river pipe tunnels and of the largest production plants and holders in the world was remarkable in conception and execution alike. He had unbounded faith in the industry he did so much to develop, and when he visited Edison in

his laboratory in 1882 he remarked that there was room in the world for both gas and electricity. His vision was so clear that he never overlooked the seemingly simple but actually significant things which to others seemed of minor importance. His foresight caused him to incorporate such wise planning that his production and distribution equipment had only to be extended, never reconstructed, to meet changed conditions. He had great composure when facing great responsibilities and was uncompromising in his demands upon himself in all that he undertook. He had a keen sense of justice, and loyalty was a predominating trait of his character. He was a generous man and willingly placed at the disposal of others, particularly the younger members of his profession, the benefit of his ripe experience and mature judgment. Well and truly did he utilize the talents entrusted to him, and in so doing was an exemplar to those who came after him.

This evening you have heard something about the past and the present of the gas industry. What of its future? We have seen how it averted the disaster threatened by the diversion of its lighting business by finding new uses as a heating agent which more than compensated for the loss of the lighting load. Is it now facing a crisis as a fuel similar to that which it formerly faced as an illuminant? This question does not reflect an actual situation, for while it is true that gas is now encountering competition of increasing variety and severity, it has certain inherent advantages which so far have given it a preferred position in the heating field, both domestic and industrial. It has shown remarkable stability during the present business depression, the sales of manufactured gas having fallen off but 7 per cent since 1929. How many industries can match this record? Certainly there is nothing here suggestive of decadence, but rather of exceptional strength and steadiness. Yet, like all industries, it must be prepared to meet the challenge of competition and of changing trends and be able to adapt itself to new demands and conditions. For example, vast supplies of natural gas have been discovered in recent years, adding greatly to the fuel resources of the country. The gas has been brought by pipe line to the centers of population not only in the Middle West but in some cases as far as the Eastern Seaboard, where it is mixed with the manufactured gas and turned into the service mains for local consumption. Just how far this movement will go and what will be the effect on the manufactured product will depend, of course, upon the economics of the situation in each case.

There have been and will continue to be changes in the production of manufactured gas. In 1920, 86 per cent of the total gas distributed by manufactured gas companies was produced in their own plants, as compared with 72 per cent in 1931, the remainder being purchased from outside sources, such as steel, coke, chemical and oil companies. As soon as any new process or combination of processes has proved itself, it will be taken up by the industry. But whatever the ultimate form of the product—manufactured, natural, or mixed—the existing gas utilities are the logical agencies to distribute it. Their facilities are adequate and available and to use any other would be an unjustifiable economic waste.

This 140-year-old industry is thoroughly modern in its organization and outlook, and as it surveys its long and fruitful past it feels a renewal of its youth and is confident that the future holds for it an equal measure of opportunity and achievement.

Mr. Barnum Director of American Standards Association

THE election of Howard Coonley, president of the Walworth Company, New York, to the presidency of the American Standards Association for the year 1933 was announced recently. The election of Mr. Coonley, who is also a director of several industrial, insurance and banking organizations, to head the national standardization work in which over 570 organizations and 2,700 individuals are engaged, follows several years of active connection with the standardization movement as the representative of the American Society of Mechanical Engineers and the mechanical industries. Mr. Coonley succeeds Bancroft Gherardi, vice-president of the American Telephone and Telegraph Company, as the president of the American Standards Association.

Mr. Gherardi's predecessor was Mr. William J. Serrill of the United Gas Improvement Company of Philadelphia; Mr. Serrill is now a Director of the American Standards Association and, with the Howell C. Cooper of Pittsburgh, represents the American Gas Association on the Standards Council.

The American Standards Association extended an invitation to nominate one of our members to serve on its Board of Directors and suggested that the qualifications needed were those of an experienced and able executive, preferably one with a sympathetic appreciation of the importance of technical work. The American Gas Association accordingly nominated one of its past presidents, a member of its Board and an executive of high rank in the industry who has come to his present important position from the engineering branch of his profession—Dana D. Barnum, president of the Boston Consolidated Gas Company. Mr. Barnum was duly elected by letter ballot of the Board of Directors of the American Standards Association and his term is for the three years beginning January 1, 1933.

In congratulating Mr. Barnum upon this important appointment we congratulate ourselves in securing so capable a representative of the gas industry. The Association has been fortunate in the unselfish and devoted service so many of its individual members have rendered in its behalf in connection with the many important activities undertaken under the auspices of the American Standards Association, an organization in which the American Gas Association is a firm believer.

State Laboratories Use Modern Fuel

THE Bacteriological Laboratory, the Food and Drug Laboratory and the Sanitary Engineering Laboratory of the State Board of Public Health of California are now housed in the University of California's New Life Sciences Building. All these laboratories are equipped with gas which is used in connection with various stills, flasks, and burners.

The laboratory of the Sanitary Engineering Bureau occupies two rooms, which are fully equipped for making bacteriological and microscopic examination of water, sewage, and shell fish and for the chemical analysis of water and sewage.

The Bureau of Sanitary Engineering was created sixteen years ago to deal with problems of water supply and sewage which bear on health. The staff is continuously experimenting with new technique and methods of analyzing water and sewage and is developing many new and pioneer ideas.

Gas Featured At National Power Show

By J. A. Malone

Chairman, Display & Contact Committee, Industrial Gas Section, American Gas Association

Glimpse of gas appliances displayed at Power Show

THE Tenth National Exposition of Power and Mechanical Engineering was held in Grand Central Palace, New York, December 5 to 10, 1932. The gas industry was represented by a display booth arranged for by a subcommittee, the members of which were P. Dorchester, J. A. Malone, R. M. Martin, A. L. Palmer and C. W. Berghorn. The following gas companies cooperated with the American Gas Association in the exhibit: Consolidated Gas Company of New York, The Brooklyn Union Gas Company, New York and Richmond Gas Company and The Brooklyn Borough Gas Company. The exhibit was designed and constructed under the direction of R. M. Martin, director of display, Consolidated Gas Company.

Sixteen manufacturers displayed their gas appliances, covering twenty-seven types of industrial and commercial applications, and in addition, there were displayed the products of twelve baking companies, six candy manufacturers, three coffee roasters, five daily newspapers and thirty-two manufacturers of other varied articles, ranging from vitamin substances to radio broadcasting tubes. All of these manufacturers used gas in producing the articles displayed. This wide representation—seventy-four manufacturers in all—was one of the reasons for the unusually heavy attendance by visitors at the gas exhibit.

The gas exhibit was arranged to feature the use of industrial gas by a somewhat novel presentation under three general headings—"Display by Industry and Product," "Display of Industrial Gas Appliances," and "Display of an Industrial Motion Picture." The "Display by Industry and Product" was accomplished by showing five recessed wall panels, these being floodlighted window displays, each devoted to a separate industry, with the products in the foreground. The subjects were "Baking," "Newspapers," "Coffee Roasting," "Candy Manufacturing," and "Hotel and Restaurant Cooking." The companies whose products were shown under these headings were:

Baking Display Window—Ward Baking Company, General Baking Company, National Biscuit Co., A. & P. Tea Company, James Butler Grocery Co., F. H. Bennett Biscuit Co., Horowitz & Margareten, Loose Wiles Biscuit Company, A. Goodman & Sons, Continental Baking Co., Cushman Sons, Inc., S. B. Thomas, Inc.

Candy Display Window—Huylers, Loft, Inc., Louis Sherry, Inc., Henry Maillard, Inc., Mirror Candy Stores, Mason Candy Company.

Coffee Display Window—B. Fischer & Company, A. & P. Tea Company, Sanka Coffee Corp.

Newspaper Display Window—"New York Tribune," "New York Post," "New York American," "New York Mirror," "New York Journal."

Another view of Power Show gas appliance exhibit

In additon there were smaller panels, without window display, in which various products of the following manufacturers were shown:

J. W. Masury & Son, Cameron Machine Company, Cuovac Radio Tube Corp., Jacobs Bros. Inc., Ideal Sign Co., Segal Safety Razor Co., Metal Package Co., American Can Co., Phoenix Hermetic Co., Metal Lithograph Co., Sterling Die Casting Co.

American Machine & Foundry Co., E. W. Bliss Company, Trans Lux Daylight Picture Screen Co., Doterin Machine Co., Ex-Lax Co., Memley & James, International Vitamin Corp., Baxter Mfg. Co., Valentine & Co., Advance Pressure Cast. Co., A. Tickle Engineering Co.

Ace Hat Block & Die Co., Marblette Co., Superior Bearing Bronze Corp., Flemm Lead Co., Isolantite, Inc., Carbona Products Co., James M. Shaw Co., Eagle Pencil Co., Columbia University, Anchor Cap & Closure Co.

The Display of Industrial Gas Appliances included latest improvements and applications of greatest current interest, many of these being in actual operation. A few of the many types of equipment which attracted attention were:

Unit Heater—General Gas Light Co.

New Bell Type Report Furnace—American Gas Furnace Co.

Gas-Fired Steam Boiler—American Gas Products Corp.

Gas-Fired Steam Boiler—Bryant Heater & Mfg. Co.

Insulated Hotel Range—Detroit-Michigan Stove Co.

High-Pressure Gas Equipment—Ensign Reynolds Co.

Oxy-City Gas Steel Cutting Torch—Harris Calorific Co.

Immersion Deep Fat Fryer—Hudson Gas Appliance Co.

Large Volume Forced Circulation Water Heater—Kompak Co.

Large Volume Multi-Tube Water Heater—Lovekin Water Heater Co.

2 H.P. Industrial Boiler—Mears-Kane-Ofeldt, Inc.

Temperature Control Display Unit—Partlow Corp.

Water Cooler—Servel, Inc.

Vulcan Oven—Standard Gas Equipment Co.

Electroblast Furnace with Blower—Stark Tool Co.

Unit Heater—Surface Combustion Corp.

Many other items in the display drew favorable comment and attention, as is indicated by the fact that two hundred and thirty-four actual inquiries were recorded, these having been forwarded to the manufacturers concerned. The reaction of manufacturers who had equipment on display is indicated from these extracts from letters sent to the American Gas Association:

. . . "we would like to say that we consider that we were well repaid for our participation in this show"; another—"I wish to take this opportunity of extending to all who had anything to do with the exhibit at the Power Show, my congratulations for the very excellent manner in which it was done. . . . I believe that this exhibit was one of the best that I have ever attended from a gas standpoint."

The industrial motion picture, which was very well received, was a film of 1,000 feet entitled "Better Heat," presented by the Consolidated Gas Company, showing various scenes in different industries where gas is used as fuel. This film was shown constantly during the greater part of the exhibit, with short time intervals between showings.

A planned effort was made at this display to coordinate the inquiries received at the gas booth with direct sales effort of the gas company and appliance manufacturer concerned. This was done by having forms prepared on which all inquiries were recorded. A copy of such an inquiry was then sent to the manufacturer whose equipment was mentioned by the visitor, and another copy of this was sent to the gas company serving the territory in which the visitor operated. This method of "tie-up" apparently met with the approval of both manufacturers and the gas companies, as a large number of letters were received by the American Gas Association expressing their appreciation of this handling of inquiries.

Appalachian Society Names New Officers

AT the annual meeting of the Appalachian Geological Society held at the Ruffner Hotel, Charleston, West Virginia, January 9, the following officers were elected:

President, Coleman D. Hunter, Kentucky West Virginia Gas Company, Ashland, Kentucky; vice-president, H. E. Crum, Columbian Carbon Company, Charleston, West Virginia; secretary-treasurer, Dr. Otto Fischer, Owens-Libby-Owens Gas Company, Charleston, West Virginia.

It was decided to continue the outline of programs which have proven profitable during the past year. In view of the interest displayed by operating executives, it was decided to admit to associate membership those persons connected with the petroleum or natural gas industry who are acting in executive capacities in the Appalachian field.

A field trip to important oil and gas fields and to interesting geological localities is planned. Last year the trip was carried out in conjunction with the Geological Department of the University of Cincinnati visiting the oil and gas fields of Eastern Kentucky and the geological exposures along the Pine Mountain fault of Kentucky. The trip for this year will be in cooperation with the Geological Department of some other university of the Appalachian District, but anyone interested in the petroleum or natural gas industry of the district is invited to attend.

Australia Installs Gas Furnace for Testing Brick

FIRE Underwriters in America and Great Britain for years have had their special furnaces for testing fire-resistant building materials. Australia, however, has only just fallen into line in this respect by erecting a similar furnace, which is situated in Sydney, the capital of New South Wales. This furnace serves the whole of Australia.

The walls and floor of the furnace consist of an outer wall of face brick, an inner lining of brickwork, with a layer of insulating brick between; special insulating concrete is used in the lintels. The inside dimensions of the chamber are 6 ft. wide, 2 ft. deep, 8 ft. 9 in. high. Four gas burners supply the heat. Twelve steel lugs at one side serve to clamp the object which is to be tested securely in position.

To carry out a test the furnace is required to produce a temperature of 1500° F. in 30 minutes and rise to 1700° F. within an hour. The perfect temperature-time curves obtained form a very marked contrast with the uneven one obtained from a solid fuel furnace.

Mr. Middleworth Heads State Association

HENRY V. MIDDLEWORTH, superintendent of operations, transportation department, Consolidated Gas Company of New York, has been named president of the New York State Motor Truck Association.

Affiliated Association Activities

Oklahoma Utilities Association

PROGRAM arrangements for the fifteenth annual convention of the Oklahoma Utilities Association, which will take place in Oklahoma City, March 7 and 8, are taking form and a meeting outstanding in its practical value to the utility industry of that State is anticipated.

The convention will be held in the Oklahoma Biltmore, Oklahoma City's new twenty-six story hotel, which has been completed and opened since the last convention of the utility interests of Oklahoma.

As a prologue to this year's convention the plan adopted last year in Tulsa of having a safety and accident prevention session on the evening preceding the opening of the convention will be followed again. This will offer a popular program, the purpose of which is to educate the public by addresses and demonstrations in the attention being given by utility companies to the importance of preventing accidents as well as treating their victims. A silver cup trophy for highest proficiency in first aid work, offered by the Association first in 1931, will again be awarded. This cup is now held by the Oklahoma Natural Gas corporation, which won it in 1931 and 1932. Should the same company win the cup this year, it will become its permanent owner. In this special feature of the convention teams, representing the gas, electric, and telephone company members of the association, will compete.

The annual convention dinner will be held on the evening of March 7. This will be practical, rather than primarily entertaining in character, with a single address to be given by a prominent speaker.

The convention sessions will include a general session the first morning with joint electric, gas and electric railway sessions the first afternoon and all the second day and special Telephone Division sessions throughout the convention after the opening general session.

At noon on the first day there will be a luncheon-conference of the women employees of the utility companies where their special activities will be discussed and reports made.

The executive board of the association will hold its annual meeting at a luncheon-conference March 8, at which officers for the ensuing year will be elected. The presidency of the Oklahoma Utilities Association rotates among the different divisions of the organization. R. J. Daugherty, of Bartlesville, representing the Gas Division, is president at this time and will have charge of this year's convention. E. F. McKay of Oklahoma City is manager of the Oklahoma association.

New England Gas Association

PRESIDENT I. T. HADDOCK, of the New England Gas Association, has announced that the seventh annual business conference will be held at the Hotel Statler, Thursday and Friday, February 16 and 17.

The keynote of the meeting will be a study of the more important questions facing the industry today.

President Arthur Hewitt, of the American Gas Association, will be one of the speakers.

Some of the topics which will be discussed are: "Employee Selling Programs," "Dealer-Utility Programs," "The Woman's Viewpoint," "Pushing Gas in Combination Companies," "The Proposed Advertising Program of the Metropolitan Area Companies," "Collection Policies," "Operating High-Spots and Industrial Developments."

The annual luncheon of the home service group of the association will be held on Friday. Mrs. Carolyn W. Bixby will preside. There will be a roundtable discussion and one formal address at the luncheon.

New Jersey Gas Association

THE annual convention of the New Jersey Gas Association will be held on Thursday, March 16, at the Walt Whitman Hotel, Camden. The committee in charge of the selection of the time and place consists of L. N. Yetter, chairman; P. D. Gardner, and H. P. J. Steinmetz.

Plans are already under way to insure an interesting and worth while program. The principal speaker will be Arthur Hewitt, president of the American Gas Association, who will bring a message of timeliness and importance from the national body. Other well-known speakers will be obtained to present their views and solutions of the many vital problems affecting the gas industry, both locally and nationally.

It is expected that between 400 and 500 representatives of the industry in New Jersey and neighboring states will attend this one day annual meeting. President John D. Alden extends a cordial invitation to all members and their friends to be present.

Mid-West Gas Association

ACCORDING to an announcement of R. B. Searing, secretary-treasurer of the Mid-West Gas Association, the 1933 convention of that association will be held in Des Moines, Iowa, April 10, 11 and 12. Headquarters will be at the Fort Des Moines Hotel. W. E. Derwent of the Geo. D. Roper Corporation is president of the association.

Pennsylvania Gas Association

THE annual convention of the Pennsylvania Gas Association will be held at Wernersville, Pa., May 9, 10 and 11, according to an announcement made by the secretary, F. W. Lesley. The president of this association is L. W. Heath of Williamsport, Pa.

Convention Calendar

February

8- 9 American Gas Association, Manufacturers Section, Water Heater Division
Hollenden Hotel, Cleveland, Ohio

14-15 Midwest Regional Gas Sales Conference
Hotel Sherman, Chicago, Ill.

16-17 New England Gas Association
Boston, Mass.

March

7- 8 Oklahoma Utilities Association
Hotel Biltmore, Oklahoma City, Okla.

16 New Jersey Gas Association
Walt Whitman Hotel, Camden, N. J.

27-31 American Society Civil Engineers
Miami, Fla.

April

10-12 Mid-West Gas Association
Fort Des Moines Hotel, Des Moines, Iowa

21 Maryland Utilities Association
Lord Baltimore Hotel, Baltimore, Md.

27-29 Missouri Association of Public Utilities
Elms Hotel, Excelsior Springs, Mo.

May

2- 4 A.G.A. Southern Regional Sales Conference
Washington, D. C.

2- 4 Southern Gas Association
Washington, D. C.

2- 5 Chamber of Commerce of United States
Washington, D. C.

9-11 Pennsylvania Gas Association
Wernersville, Pa.

May 30 to June 2 Institution of Gas Engineers (British)
Liverpool, England

June

1- 2 American Gas Association, Executive Conference
Stevens Hotel, Chicago, Ill.

September

18-19 Canadian Gas Association
Ottawa, Ontario

Wk. 25 International Gas Conference and Fifteenth Annual Convention, American Gas Association
Stevens Hotel, Chicago, Ill.

October

Wk. 11 National Association of Railroads & Utilities Commissioners
Cincinnati, Ohio

24-26 American Petroleum Institute
Chicago, Ill.

Stop It Now

By Wright A. Patterson

In the *Queens-Hollis Times*, Queens Village, N. Y., January 6, 1933

WITHIN the next two months State Legislatures in several States will be considering the passage of bills prohibiting the sale of appliances on the part of utility companies. I understand that such legislation will be attempted in Ohio, Maryland, Alabama, Georgia, New York, Indiana, Michigan, Tennessee, Texas and possibly some other States.

Newspaper editors of these States, or any State in which legislation is attempted, can find no better way of serving the people of their communities than by strenuously opposing such legislation. Laws of this kind have been tried and have proven failures in every particular. They have not helped, as promised, the independent dealer; they have created additional unemployment; they have emptied store buildings in very many cities and towns; they have cut out many thousands of dollars of newspaper advertising, and they have seriously injured those who had previously purchased appliances by taking from them the opportunity of having these appliances serviced.

Kansas is an outstanding example of the effect of such a law, and the press association of that State at its meeting last winter passed resolutions demanding the repeal of the law. In addition to the harm it had done to the public generally by depriving cities and towns of adequate service, and contributing to empty store buildings and unemployment, it had directly cost Kansas newspapers more than a quarter of a million dollars a year in advertising loss.

Such a law does not help the independent merchant who does not push sales on these appliances; and in fact the public will not buy them unless assured of service to keep them in repair, a service no merchant can afford to maintain. It has been demonstrated that independent merchants sell more appliances in communities where the utility companies are operating, are advertising appliances and are maintaining service stations for them than they have been able to sell when the utility company salesrooms have been closed.

. . . Men have found they could induce merchants to subscribe to funds ostensibly raised to promote such legislation. They have indicated to merchants that putting the utility companies out of the appliance sales field would mean increased sales for the merchants, and by so doing have succeeded in raising large sums ostensibly for such a purpose.

To the merchant it sounds plausible, but it has not worked where it has been tried. Editors in every State in which such legislation is proposed should advise their members of the legislature in no uncertain terms that the passage of such a bill would be detrimental to the people of their community, would not meet with approval of themselves as editors, and would not be of benefit to the merchants of the town, but would, in fact, be a detriment.

Editors should go further than this and advise their merchants not to waste money by contributing to any "racket" that proposes such legislation, and the editors can well afford to oppose any such move in their editorial columns.

Should the editors of any State sit supinely by and permit such legislation to get onto the statute books they will have only themselves to blame for a very heavy loss in advertising patronage for the newspapers of their State, and for a severe loss to the people of any community in which the utility companies maintain an appliance salesroom.

Do not wait for "George" to stop such nefarious legislation, but take a hand in it yourself—today.

Terra Cotta Makers Find Gas Best Fuel to Meet Demand for Color

By J. B. Nealey

The burning of colors onto ceramic products calls for a difficult technique, based not only on long experience but also on close and accurate control of atmospheric conditions and temperatures within the kiln, for the least change in either, or the relation of one to the other, at the wrong moment, will at once spoil an entire kiln charge. Recently the use of gas, because of its easy control, has made possible the use of many more colors, delicate shades and combinations than were economically possible with other fuels. Some notable achievements in color combinations are described in Mr. Nealey's article together with the details of the equipment at the plant at which they were produced.

COLORS, brilliant and exotic, contrasting combinations, startling but nevertheless artistic in their arrangement, are becoming a dominant note in modern architecture. Especially is this true of the larger structures such as office buildings, stores, theatres, etc. Inasmuch as colored Terra Cotta is being utilized on an ever increasing scale as facing, both inside and out, this division of the ceramic industry has been forced to considerable research to meet the demand for colors and color schemes.

Pioneering in this field is the Gladding MacBean Co., Los Angeles, Calif., which owns 12 plants, placed at strategic points along the Pacific Coast. This firm is the largest manufacturer of ceramics on the Pacific Coast and makes a great variety of clay products both vitrified and otherwise. The development and production of colors and color vehicles for ceramic ware requires technical ability of the highest order and their subsequent burning in the kilns is dependent upon a fuel, through the use of which the operator can readily and definitely control the temperatures and atmospheres of the kiln. Gas has been found to be the best fuel for this purpose.

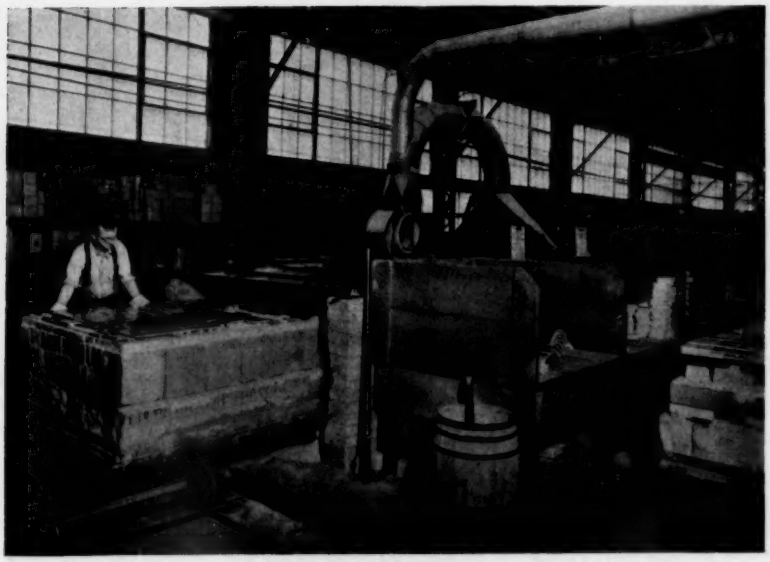
Three monuments to the success of this concern have recently been erected in Los Angeles that are internationally recognized as high lights in the color phase of architecture. The first is the 13-story office building of the Richfield Oil Co., which is an outstanding architectural achievement in black and gold. There have been other attempts at black and gold combinations for building exteriors but nothing in as permanent and high quality materials. The effect is certainly a very beautiful one.

The body color of the building is black. The glaze used possesses a soft satin-mottle texture and the ashlar surfaces are fluted with wide (about 1½ in.) concave flutes running vertically. The main entrance, as well as the vertical piers, and main cornice of the building are heavily decorated with pure fired gold in a full glossy texture, in combination with the black body color and a contrasting blue green polychrome color, the latter being used sparingly and for contrasts, particularly in all of the spandrels (below the windows).

Most of the features just mentioned are fully covered with the pure bright fired gold. This, of course, is very effective, and, being non-tarnishing, the gold lends a life and brightness to the building which is quite permanent. The entrance and the main cornice or parapet wall are very striking. From a ceramic standpoint this building indicates what can be done with such a plastic medium as architectural terra cotta. The terra cotta was all fired first to about 2300° F. and then ceramic gold was fired on the desired areas in a second operation at approximately 1400° F. The black glaze combined a high concentration of such oxides as cobalt oxide, ferric (iron) oxide and manganese dioxide. In the proper combination these coloring ingredients will produce true black colors even at the high temperature (2300° F.) employed in firing the terra cotta.

The second building of note is Bullock's Wilshire boulevard Store which is faced with architectural terra cotta of a very unusual character. The principal feature of this terra cotta is its texture which gives the effect of a deep vertical combing. This texture was developed from the heavy "combed" effect of the bark of certain coniferous trees, and after considerable study was evolved as a distinctly ceramic treatment which is quite interesting and refreshing in character. The texture serves to soften the large flat surfaces of the pyramidal style of architecture used and adds much to the effectiveness of the building exterior.

The terra cotta blocks used are very large and so jointed as to be in keeping with the large scale of the building. The finish of the terra cotta (applied over the textured surfaces) is a very soft mottle glaze combination in a harmonious mottled and shaded effect known as "pulsichrome." The colors consist of several shades of grayish cream blended together with a rich gray buff color. The color value of the building exterior becomes a light gray buff. The spandrels of this building are made of metallic copper which was treated to give the typical rich green shadings of a "verdi-copper" effect. The rather bright colorings of the spandrels liven up the



Discharge end of continuous glost kiln.

exterior of the building very admirably. All in all this building presents a very massive and dignified exterior, the lines of which are extremely pleasing, following, as they do, a rather pyramidal style.

The coloring materials used for the glazes were not at all unusual. The normal stains for such colors are manganese dioxide, iron oxide, umber and certain stains containing combinations of zinc and chromium compounds. Necessarily, for such light colors, very small concentrations were used.

The third example is the 13-story building of the Eastern Outfitting Co., the entire outside of which is faced in terra cotta of a turquoise blue color. This turquoise blue was augmented by the use of real gold in the lettering over the main entrance and in the spandrels between the windows, which gives these latter a stippled effect.

At the Glendale plant of the Gladding MacBean Co. the architect's plans and specifications are first received by the engineering department, where full sized detailed working drawings are made of the different designs and ornamentations to be reproduced in terra cotta. These are then sent to the moldeling room where they are worked out by sculptors and color artists. Full sized models are made up of plaster of paris and clay, the former being used for the base edging and molding and the latter for applying the free hand ornamentation. The entire model and design is then cast in plaster of paris and this form is then transferred to the pressing department, where it serves as a mold for duplication in terra cotta clay. On an average, one large mold will serve for 30 reproductions while the smaller ones are good for two to three hundred.

The body material is a combination of grog and clay, most of the latter being obtained from the company's own deposits. There is a group of six storage hoppers arranged in two parallel lines with a traveling belt conveyor running between them. Grog and sand is held in two of these hoppers and four kinds of clay in the others. Any desired formula can be made up direct on the conveyor by feeding the proper proportions of these materials onto it, and this mixture is then fed directly into the pug mills. One of these is the single shaft and the other the double shaft type, and water is added to bring the mix to the right consistency. The column of clay extruded is broken off in 50 lb. chunks, which are placed on skids and transferred, by high lift trucks, to the press room. This material is then pressed into the molds to form the ornamental terra cotta pieces which are dried and then fired in the gas-fired kilns.

The press room is laid out in long parallel spaces for the workmen and materials with aisles between. When the terra cotta pieces have been formed and knocked from the molds they must be dried and this is accomplished in two stages. A hot air pipe line is suspended above each row of working spaces and from this drops a series of canvass ducts. As the terra cotta pieces are formed hollow, to save weight, these canvass ducts are inserted in each and the hot air forced in dries them out. After this the pieces are charged into the humidity dryers.

The two heaters provided are of sheet metal built one on top of the other to save space. The humidity dryer is the larger, being 36 ft. long, 20 ft. wide and 8 ft. high, and sets directly on the floor. It is heated with steam raised in gas-fired boilers which is mixed with dry air to reduce its humidity to the correct pro-

Bisque kilns.

Dryers in press room.

portion. The other heater sets on top and is 12 ft. long, 8 ft. wide and 6 ft. high and is heated with six atmospheric type gas burners. This heater is filled with sheet metal heat exchangers, fresh air being forced by fan through the exchangers, where it is heated and then through the pipes on the floor to the work as described. The hot products of combustion are vented to the atmosphere. The dried work is stored on racks and transferred as required, on spring trucks, to the glaze department where the glaze is applied, after which they are placed in the gas-fired kilns for burning.

There are five terra cotta kilns of the full muffle type, four of which are on one stack. Three of these are 20 ft. in diameter inside and 10 ft. high to the spring line of the crown. The other two are slightly smaller. Constructed of brick, each is built with double walls so as to leave a space between for the hot products of combustion. In the center is a chimney running from the crown down to a false floor under which is another space through which the heat is circulated and then vented to an underground flue to the stack. Each is heated with about 10 atmospheric gas burners firing into the bottom of the space between the walls and arranged equi-distant about the periphery of the kiln. In this way the heat is completely circulated about the inner wall and floor of the kiln and also down the center. With this method of radiating heat from all sides, the bottom and the center, the kiln charge is at practically the same temperature in every part. This evenness of temperature is one of the greatest problems in firing terra cotta.

Another portion of this plant is utilized for making building tile and both bisque and glost kilns are provided for its burning. There are six bisque kilns ranging from 12 to 15½ ft. in diameter. These are also heated with gas, seven burners to a kiln, which fire into fire boxes and behind bag walls to divert the heat upwards. They are of the down draft type. An experimental bisque kiln is rectangular in shape, 7½ ft. long, 5½ ft. wide and 7 ft. high, and it is fired with eight gas burners.

The glost kiln is of unusual design and is of the continuous car bottom, full muffle type. Of brick construction it is 122½ ft. long, 5½ ft. wide and 3½ ft. high. The roof is arched, and, for the first half of the length of this kiln, consists of double walls which form the muffle and into which the gas burners fire. The inside walls of this muffle extend down each side of the kiln, inside, about 10 in. The muffle is 60 ft. long starting at the charging end and extending to the center of the kiln. It is fired at this end with four gas burners on each side, firing into tunnels which open into the muffle. These tunnels, burners and fans for premixing the gas and air, are mounted on steel frames set on the side walls of the kiln.

The waste heat is vented at the opposite end with the aid of an induced draft fan so that the heat travels toward the charging end of the kiln. Hence the kiln is fired on the counter-flow principle, and it is divided into three zones, preheat, high heat and cooling. A motor operated fan is also placed at the discharge end of the kiln and this forces a draft straight through the heating chamber of the kiln, to the charging end. This insures complete circulation of the heat and carries away any gases that may come off from the glazed ware.

There are two parallel tracks for the cars to operate on, one running through the kiln and the other outside for loading and unloading. There is a transfer track at each end of the kiln so that the loaded cars can be transferred to the kiln track and then transferred back when the tile has been burned. Spraying booths and glaze dipping machines, the latter with tanks, application rollers and belt conveyors, are arranged along the loading track so that the tile can be glazed and placed directly onto the cars with minimum handling.

At the charging end is an endless chain with dogs, suspended on two sprockets about 10 ft. apart and located between the rails of the kiln track. As the loaded cars are transferred to this track the dogs engage it and force it into the kiln, at the same time pushing the entire line of cars forward. This chain is motor operated through a gear reduction train. The tops of the cars are of refractory material and the edges are sand sealed with the walls of the kiln so that no heat can penetrate down into the lower portion of the kiln where the trucks operate. The spaces between the car tops are sealed with asbestos rope. This kiln will hold 55 cars, is operated continuously 24 hours of the day and 1,000 sq.ft. of tile can be burned in this period. Temperature control is aided by the use of indicating pyrometers and thermocouples which protrude into the heating chamber. The highest temperature used is approximately 1,975° F.

Still another section of the plant is

(Continued on page 74)

Gas Produced or Sold in Importan Co

Compiled by Statistical Depa t An

(Note: All gas quan pressed

	1928	1929	1930	1931
UNITED STATES				
Gas Production				
Manufactured Gas	408,711,700	435,106,000	433,762,100	419,128,700
Natural Gas (Excluding natural gas used in field operations and in production of carbon black)	819,144,000	951,261,000	951,854,000	917,488,000
Total Gas Produced	1,227,855,700	1,386,367,000	1,385,616,100	1,336,616,700
Production per Capita of Total Population	10.25	11.41	11.25	10.77
Production per Capita of Population Served with Gas	16.64	18.79	18.78	18.12
GREAT BRITAIN (Excluding Ireland)				
Manufactured Gas Production	305,184,000	316,201,000	312,811,000	313,517,000
Production per Capita of Total Population	6.87	7.12	6.98	7.00
Production per Capita of Population Served with Gas	*	*	*	*
GERMANY				
Manufactured Gas Production	128,211,000	135,202,000	130,753,000	126,339,000
Production per Capita of Total Population	2.01	2.11	2.03	1.96
Production per Capita of Population Served with Gas	3.62	3.70	3.51	3.40
FRANCE				
Manufactured Gas Sales	62,569,000	65,888,000	65,853,000	*
Sales per Capita of Total Population	1.53	1.61	1.61	*
Sales per Capita of Population Served with Gas	2.68	2.82	2.82	*
DOMINION OF CANADA				
Gas Sales				
Manufactured Gas	15,606,600	17,649,400	17,713,500	17,111,400
Natural Gas	22,582,600	24,514,200	29,104,500	25,874,700
Total Gas Sales	38,189,200	42,163,600	46,818,000	42,986,100
Sales per Capita of Total Population	3.88	4.20	4.59	4.14
Sales per Capita of Population Served with Gas	*	*	*	*
JAPAN†				
Gas Sales	20,429,000	23,090,000	24,700,000	26,100,000
Sales per Capita of Total Population	0.33	0.36	0.38	0.40
Sales per Capita of Population Served with Gas	*	*	*	*
HOLLAND				
Manufactured Gas Production	20,409,000	21,822,000	22,669,000	22,281,000
Production per Capita of Total Population	2.64	2.79	2.86	2.78
Production per Capita of Population Served with Gas	4.15	4.41	4.44	4.31
ITALY				
Manufactured Gas Production	15,854,000	17,549,000	18,220,000	18,220,000
Production per Capita of Total Population	0.38	0.42	0.43	0.43
Production per Capita of Population Served with Gas	1.44	1.56	1.58	1.54

Countries of the World—1928-1931

American Gas Association

quantities expressed in M Cu.Ft.)

	1928	1929	1930	1931
BELGIUM				
Manufactured Gas Production	*	*	17,584,000	*
Production per Capita of Total Population	*	*	2.18	*
Production per Capita of Population Served with Gas	*	*	*	*
AUSTRIA				
Manufactured Gas Production	12,323,000	13,170,000	12,782,000	13,100,000
Production per Capita of Total Population	1.84	1.97	1.90	1.95
Production per Capita of Population Served with Gas	4.51	4.94	4.71	4.86
SWITZERLAND				
Manufactured Gas Production	7,168,000(a)	7,768,000(a)	8,051,000(a)	8,474,000(a)
Production per Capita of Total Population	1.79	1.94	1.98	2.12
Production per Capita of Population Served with Gas	3.49	3.62	3.71	3.79
DENMARK				
Manufactured Gas Production	7,380,000(b)	7,309,000(c)	7,627,000(d)	7,768,000(e)
Production per Capita of Total Population	2.15	2.06	2.11	2.11
Production per Capita of Population Served with Gas	4.45	4.36	4.42	4.43
SWEDEN				
Manufactured Gas Production	5,367,000	5,826,000	6,144,000	6,462,000
Production per Capita of Total Population	0.88	0.95	1.00	1.06
Production per Capita of Population Served with Gas	3.55	3.80	3.93	4.07
CZECHOSLOVAKIA				
Manufactured Gas Production	3,397,000	3,828,000	4,064,000	*
Production per Capita of Total Population	0.21	0.28	0.27	*
Production per Capita of Population Served with Gas	1.32	1.45	1.52	*
HUNGARY				
Manufactured Gas Production	3,524,000	3,736,000	3,771,000	3,792,000
Production per Capita of Total Population	0.42	0.44	0.45	0.45
Production per Capita of Population Served with Gas	2.13	2.26	2.28	2.30
NORWAY				
Manufactured Gas Production	1,430,000	1,419,000	1,363,000	1,374,000
Production per Capita of Total Population	0.51	0.51	0.48	0.49
Production per Capita of Population Served with Gas	2.41	2.40	2.30	2.30
YUGO-SLAVIA				
Manufactured Gas Production	420,000	448,000	463,000	505,000
Production per Capita of Total Population	0.03	0.03	0.03	0.03
Production per Capita of Population Served with Gas	0.62	0.66	0.68	0.73

NOTE: All information shown in this table with exception of data on the United States, Canada, Japan, and 1931 data on Holland and Denmark was collected by the German Society of Gas and Water Works *(Deutscher Verein Von Gas-Und Wasserfachmannern E. V.)* and converted from cubic meters to M Cu.Ft. by the Statistical Department of the American Gas Association.

Figures shown for manufactured gas production include coke oven and other manufactured gas purchased by gas companies from steel, coke oven and other industries.

Data shown on natural gas production in the United States excludes gas used in field operations and consumed in the manufacture of carbon black, because of the large quantities involved, and because no comparable situation exists in other countries.

* Data not available. (a) Data based on fiscal year; production for calendar year is a little higher. (b) Data for fiscal year 1928-1929. (c) Data for fiscal year 1929-1930. (d) Data for fiscal year 1930-1931. (e) Data for fiscal year 1931-32.

† Data shown for Japan covers Japan proper only and does not include Formosa, Korea, Sakhalin, Kwantung and other parts of the Empire of Japan. Sales figures for Japan include both manufactured and natural gas, the latter being about one per cent of the total.

Committee Actively Prepares For A. G. A. Show at Chicago

BECAUSE of the brief time afforded prior to the opening of the Chicago Century of Progress Exposition on June 1, the American Gas Association Committee has been extraordinarily active. A meeting of the committee was held at Association Headquarters on January 4 when Chairman R. B. Harper presented some 125 separate plans which had been placed in his hands for consideration in connection with an exhibit of the natural gas and manufactured gas industry.

A committee subsequently reviewed the suggestions and made their comments thereon.

Chairman Harper addressed a letter to a group of companies believed to have some material or models on hand which might be useful in this connection, requesting their cooperation. This will undoubtedly bring forth some interesting developments.

Efforts will be made to so line up the Association's exhibit with those of manufacturers in the industry who have secured space from the Exposition officials in the same building, as to afford no conflict and so that so far as possible each portion of the exhibits in the building will supplement the other portions.

Another meeting of the committee was called by Chairman Harper to be held in Chicago on February 1 for the purpose of going over competitive proposals and making decisions concering the general aspects of the exhibition.

The committee is composed of the following members:

R. B. Harper, chairman; J. D. Creveling, B. J. Mullaney, C. J. Ramsburg, F. J. Rutledge, N. T. Sellman.

L. C. Smith Resigns Post With A. G. A.

MANAGING Director Forward has announced the resignation on January 1 of L. C. Smith, his assistant, to enter other business.

"I regret very much," wrote Mr. Forward, "the severance of pleasant relations and the loss of your very intelligent and satisfactory assistance, and wish you sincerely every success in your new undertaking."

Kentucky Oil and Gas Officers Elected

AT the annual meeting of the Kentucky Oil and Gas Association, held at the Brown Hotel, Louisville, Kentucky, the following officers were elected:

Dan S. Keenan, president; Earl Wallace, vice-president, central district; O. W. Van Petten, vice-president, eastern district; W. H. Keffer, secretary-treasurer.

Directors: O. W. Van Petten, D. S. Keenan, Paul Blazer, eastern district; W. E. Hupp, Carl Weideman, Fred T. Ward, western district; J. A. Patton, Earl Wallace, R. C. Snyder, central district; E. L. McDonald, H. W. Ross, T. J. Tonkin, Jr., state-at-large.

The election of a vice-president from the western Kentucky district was postponed until a later meeting to be held at Owensboro.

The office of the president is located in Ashland, Kentucky, Room 608, Ashland National Bank Building.

Transfer Headquarters to Santa Cruz

EXECUTIVE offices of the Natural Gas Corporation of California and the West Side Natural Gas Company have been transferred from the Standard Oil Building in San Francisco, to Santa Cruz, where headquarters of the Coast Counties Gas and Electric Company are maintained.

J. B. Wilson, president of the Coast Counties Gas and Electric Company was recently elected president of the Natural Gas Corporation of California and the West Side Natural Gas Company, and the consolidation of the head offices of these three companies was made so that a more efficient and economical supervision could be given the operations at a centrally located point.

George McLean

GEORGE McLEAN, sixty-nine years old, president and general manager of the Key City Gas Company, Dubuque, Iowa, and a prominent figure in that city's civic and industrial life, died at a Dubuque hospital, January 19.

Mr. McLean was born in Dubuque, May 26, 1863, a son of Daniel and Mary Ann McManus McLean.

He received his education in public and private schools. It was after his first job on the Mississippi River that, in 1881, he entered the employment of the Key City Gas Company in the capacity of meter reader and collector. The traits of his character and the brilliance of his mind, which were later to bring him great success as an executive, were early recognized by his employers and he was gradually advanced through various positions until finally he was named assistant secretary. Later he was appointed secretary, then manager. In June, 1903, he was elected president of the company, succeeding the late William L. Bradley.

Mr. McLean was nationally recognized among operators of public utilities as an expert on all matters pertaining to the manufacture and distribution of gas. He was a member of the old National Gas Association and of the Iowa Gas Association, serving as one of the earlier presidents of the latter organization, which embraced manufacturers and distributors of gas in Iowa, Nebraska, and Minnesota.

Mr. McLean was one of nine children. Surviving are his twin brother, Charles McLean, and his sister, Miss Emma McLean, both of Dubuque, and another brother, Frank McLean of Chicago.

Will Present Paper At World Power Conference

HENRY O. LOEBELL, vice-president and general manager of the Combustion Utilities Corporation, will contribute in behalf of the American Gas Association, to the sectional meeting of the World in Stockholm, Sweden, in June. Mr. Loebell will present a paper on "Industrial Gas Heating in the United States."

Henry O. Loebell

In the cooperative work undertaken on the subject of "Industrial Gas in the United States—Growth and Trends," which was presented before the Fuel Conference of the World Power Conference, at London, in 1928, Mr. Loebell, as a representative of the A. G. A., wrote the First Part—"Economics of Industrial Fuel Utilization."

ACCOUNTING SECTION

J. M. ROBERTS, Chairman H. W. HARTMAN, Secretary E. B. NUTT, Vice-Chairman

General Committee Organizes Regional Groups

A MEETING of the General Accounting Committee was held at Association Headquarters Thursday, December 29, with the following members present:

M. F. Reeder, chairman, The Peoples Gas Light & Coke Co., Chicago, Ill.; L. L. Dyer, vice-chairman, Lone Star Gas Co., Dallas, Texas; Frank J. Bischoff, Jr., Consolidated Gas Co. of New York, New York, N. Y.; W. F. R. Munnich, Philadelphia Electric Co., Philadelphia, Pa.; F. B. Saunders, Philadelphia Co., Pittsburgh, Pa.

The chairman indicated that he had decided upon the policy of encouraging participation of accountants in different parts of the country by dividing the members of the main committee into Southwestern, Mid-Western and Eastern Subcommittees. It will be understood that the chairmen of these subcommittees will have full authority to work out the activities assigned to them, and to appoint such additional members in their territories as they required, providing the total number of members of each subcommittee did not exceed the ten members permitted by the Manual of Committee Procedure.

The following regional subcommittees were named:

Southwestern Subcommittee

L. L. Dyer, chairman, Lone Star Gas Co., Dallas, Texas; J. A. R. McFadden, Consolidated Gas Utilities Co., Wichita, Kansas; S. B. Redmond, The Kansas Power & Light Co., Salina, Kansas.

Mid-Western Subcommittee

E. R. Rotramel, chairman, The Peoples Gas Light & Coke Co., Chicago, Ill.; John L. Schick, Central Public Service Co., Chicago, Ill.; M. F. Reeder, The Peoples Gas Light & Coke Co., Chicago, Ill.; W. A. Black, Minneapolis Gas Light Co., Minneapolis, Minn.

Eastern Subcommittee

F. B. Saunders, Philadelphia Co., Pittsburgh, Pa.; W. F. R. Munnich, Philadelphia Electric Co., Philadelphia, Pa.; Frank J. Bischoff, Jr., Consolidated Gas Co. of New York, New York, N. Y.; W. J. Hightower, United Fuel Gas Co., Charleston, W. Va.

It was decided to assign to the Mid-Western Subcommittee the subject of audits. In discussing this question it was further suggested that some outside speaker from the Mid-West be obtained to present a brief address at the Convention on "Fundamentals of an Audit." In any case, the committee's work on this subject, it was agreed, should stress the matter of bringing out procedures in such a way that they could be applied to any company rather than involve detail description of systems in individual companies.

It was decided to assign to the Eastern Subcommittee the question of preservation and destruction of records. Mr. Saunders has been closely in touch with the N. E. L. A. activity on this subject, and it was agreed that the A. G. A. report should be worked out having regard to the action already taken on this question by the N. E. L. A.

Natural gas pipe line operating costs and statistics was referred to the Southwestern Subcommittee. There was also referred to this subcommittee a suggestion that study be given to capitalization of idle plants after construction, specifically in connection with change-overs and new construction work.

The committee gave consideration to the increasing burden of local taxes, but no action was taken pending the report of the General Committee on Taxation.

Mr. Saunders briefly described a new application of machines to accounts payable records, whereby the accounts payable voucher, the file copy, and the voucher registry sheet and distribution could be obtained in one operation. He stated the system had worked out on two kinds of machines, but to date only the first step in the use of this class of equipment had been made. It was agreed that Mr. Saunders should get in touch with Mr. Eble of the Accounting Machines Committee with a view to working out jointly the question of making this information available to the industry.

Natural Gas Masks the Famous

NATURAL gas has found its way into many industries. "Gas News," published by the Southern California Gas Company, Los Angeles, says it has discovered an unusual occupation, a strange business where, in the back of a shop, this versatile fuel is giving daily service.

This industry is really not an industry at all, rather it is an artist's studio. "Struberg's" is the firm's name, and it is located in Los Angeles. You enter the door and if you have a strong heart and a healthy constitution you will survive the first shock. Perhaps you are in the catacombs of Rome or Paris. On shelves and in corners stand replicas of human forms—death masks of famous persons. There on the wall is a replica of the original Abraham Lincoln death mask, also the life masks of the most prominent stars of Hollywood. The young lady standing in the corner with plaid skirt, patent leather belt, and hat cocked at rakish angle is not a real young lady at all, but a statue of Joan Crawford as Sadie Thompson in the recent motion picture "Rain."

Many of the most prominent stars of Hollywood have come to this studio at one time or another to have masks made. Mrs. Struberg, who with her daughter, are proprietors of the studio, tells us how, when they covered the smiling face of Douglas Fairbanks with the plastic material, a portion stuck to his famous teeth and moustache. "But he took it good naturedly, and only laughed," says Mrs. Struberg. On the shelves are life-like busts of Lewis Stone, Marlene Dietrich, Wallace Beery, Greta Garbo, John Barrymore, Marie Dressler, Warner Baxter, Bella Lugosi, and a host of others. A local department store not long ago, had a window display of life-like figures from the motion picture "Grand Hotel." These figures were created at Struberg's.

Truly this is an interesting business. Whenever replicas of human forms or their separate parts are needed, this studio is ready as a source of supply. Those who shuddered through the picture "Doctor X," will remember the false hand used by the insane doctor. The writer, while visiting the studio, gingerly picked it up and placed it under his coat sleeve. The effect was startling, he was almost afraid of himself!

The intricate process of constructing and painting these life-like models calls for the greatest artistry and skill. In the rear of the room a natural gas-fired plate processes the wax and other ingredients that are used in this unusual business.

COMMERCIAL SECTION

WALTER C. BECKJORD, Chairman J. W. WEST, Jr., Secretary N. T. SELLMAN, Vice-Chairman

Southwest Sales Meeting to Open in Dallas This Month

THE third annual Southwest Regional Sales Conference, conducted under the auspices of the Commercial Section, American Gas Association, will take place February 24 and 25 at the Baker Hotel, Dallas, Texas.

Following is the tentative program outlined by the Southwest Regional Sales Council.

FRIDAY, FEBRUARY 24

10:00 A.M.

Opening Remarks.
C. K. Patton, Chairman, Dallas Gas Company, Dallas, Texas.

National Directing Committee of Executives.
J. V. Strange, United Gas Public Service Company, Houston, Texas.

The Human Element in Advertising.
Thomas C. Gooch, Times Herald Publishing Company, Dallas, Texas.

FRIDAY, FEBRUARY 24

2:00 P.M.

Competition in the Selling of Ranges and Water Heaters.
C. A. Breitung, Southwest Utilities Company, Ada, Oklahoma.

Sales Trends from the Range Manufacturers' Viewpoint.
A. P. Tappan, Tappan Stove Company, Mansfield, Ohio.

Sales Trends from the Water Heater Manufacturers' Viewpoint.
Arthur Apmann, Cleveland Heater Company, Cleveland, Ohio.

Commercial Cooking Competition.
William J. Hill, Detroit-Michigan Stove Company, Detroit, Michigan.

SATURDAY, FEBRUARY 25

9:00 A.M.

Symposium: Better Heating and How to Develop It

Conversion Burners.
W. Jennings Young, Oklahoma Natural Gas Corporation, Tulsa, Oklahoma.

Central Heating.
A. W. Lordahl, Surface Combustion Corporation, Toledo, Ohio.

Sales and Service of Floor Furnaces.
Bert P. Fisher, Payne Furnace Company, Forth Worth, Texas.

Sales and Service of Circulating Heaters.
Lewis Moore, Jr., Moore Brothers Company, Joliet, Illinois.

Sales and Service of Gas Steam Radiators.
A. J. Belew, James B. Clow and Sons, Dallas, Texas.

Sales and Service of Space Heaters.
Vernon R. Brown, Lone Star Gas Company, Fort Worth, Texas.

SATURDAY, FEBRUARY 25

2:00 P.M.

Gas Refrigeration.
C. K. Patton, Dallas Gas Company, Dallas, Texas.

Servicing and Its Relation to Sales.
Charles Burke, Texas Cities Gas Company, Waco, Texas.

Maintaining Present Customers and Revenues.
Chester L. May, Community Natural Gas Company, Dallas, Texas.

Following are members of the Southwest Regional National Gas Sales Council:

C. K. Patton, chairman, Texas Cities Gas Co., Dallas, Tex.; R. C. Anderson, Mississippi Power & Light Co., Jackson, Miss.; E. N. Avegno, New Orleans Public Service, Inc., New Orleans, La.; J. A. Bell, Kansas Power & Light Co., Salina, Kan.; J. J. Brennan, Memphis Power & Light Co., Memphis, Tenn.; Q. R. Dungan, Cities Service Gas Co., Bartlesville, Okla.; H. L. Mann, Texas Gas Utilities Co., Del Rio, Tex.; A. E. Higgins, Secretary, Natural Gas Department, Dallas, Tex.; L. G. May, Albuquerque Natural Gas Co., Santa Fe, N. M.; Carl J. Minnig, Phillips Petroleum Co., Bartlesville, Okla.; J. F. Orr, United Gas Public Service Co., Houston, Tex.; F. M. Rosenkrans, Gas Service Co., Kansas City, Mo.; R. E. Sivley, San Antonio Public Service Co., San Antonio, Tex.; Carl Trevitt, Community Natural Gas Co., Dallas, Tex.; E. C. Whitcomb, Lone Star Gas Co., Fort Worth, Tex.; C. B. Wilson, Little Rock Gas & Fuel Co., Little Rock, Ark.; W. Jennings Young, Oklahoma Natural Gas Corp., Tulsa, Okla.

Mid-West Sales Conference To Last Two Days

THE seventh annual Mid-West Regional Gas Sales Conference of the American Gas Association will take place February 14 and 15 at the Hotel Sherman, Chicago, Ill.

This conference will precede the sales conference of the Great Lakes Division of the National Electric Light Association, which will take place at the Edgewater Beach Hotel, Chicago, Thursday and Friday, February 16 and 17. A joint meeting for those attending these conferences is being arranged for the evening of February 15 at the Edgewater Beach Hotel at which time cooperative sales activities will be the subject of discussion.

A program of strong speakers discussing today's gas selling conditions has been arranged. Gas appliance manufacturers are especially invited to attend the conference and participate in the program and discussions, and the second morning's session will be devoted entirely to a manufacturers' symposium on sales trends.

Stanley Jenks, Northern Indiana Public Service Company, Hammond, Indiana, is chairman in charge of the conference, and E. J. Boyer, Minneapolis Gas Light Company, Minneapolis, Minnesota, is vice-chairman.

Members of the Council include: A. F. Davey, Wisconsin Public Service Corp., Sheboygan, Wis.; Howard Davis, Consumers Power Co., Jackson, Mich.; W. R. Evans, The Peoples Gas Light & Coke Co., Chicago, Ill.; D. H. Frazier, Jr., Battle Creek Gas Co., Battle Creek, Mich.; R. O. Jasperson, Milwaukee Gas Light Co., Milwaukee, Wis.; W. L. Jones, St. Louis County Gas Co., Webster Groves, Mo.; G. C. Klopf, Wm. A. Baehr Organization, Inc., Chicago, Ill.; C. A. Luther, The Peoples Gas Light & Coke Co., Chicago, Ill.; F. X. Mettenet, Public Service Co. of Indiana, Indianapolis, Ind.; W. F. Miller, Public Service Co. of Northern Illinois, Chicago, Ill.; C. A. Nash, United Light & Power Engineering & Construction Co., Davenport, Ia.; F. M. Rosenkrans, The Gas Service Co., Kansas City, Mo.; and J. M. Curtin, The Laclede Gas Light Co., St. Louis, Mo.

HOME SERVICE COMMITTEE

RUTH KLEINMAEIR, Chairman JESSIE McQUEEN, Secretary

Committee Holds First Meeting

Ruth Kleinmaier

THE first meeting of the 1933 American Gas Association Home Service Committee was held in New York City, January 6, with the chairman, Miss Ruth Kleinmaier, of the Central Hudson Gas and Electric Corporation, presiding.

The chairman called attention to the formation of the National Directing Committee of Executives which has been appointed to sponsor an aggressive sales policy on the part of gas utilities. One of the activities to be promoted this year is the fuller utilization of Home Service Departments. The chairman of the Commercial Section has asked that an effective way of presenting Home Service work to executives be made available by the Home Service Committee with definite recommendations as to how a Home Service Department could be of most value to a company, what its operations should be and what aims should be considered.

The plan of work submitted to the committee is outlined as follows:

I. *Function and Aims of Home Service in A Sales Program*

(a) Operation of Home Service—Definite recommendations to the National Directing Council as follows:

(1) What a Home Service Department should be.

(2) Whether primarily a sales activity or a servicing and good-will builder without sales objectives.

(3) How a Home Service Department can be of most value to a company.

(b) Trade Dealer Cooperation.

Draw up report or statement recognizing correlation that Home Service is playing in dealer relations work.

II. *Home Modernization*

(a) Kitchen and Home Planning: with respect to both customers and employee's premises and recommendations as to the methods by which Home Service Departments could be most valuable in this work.

(b) Assistance in promotion of all gas kitchens in department stores and stores of trade dealers.

III. *Home Service Development*

(a) Continue study of the operation of Home Service throughout the country as it is meeting current problems.

(b) A resumé to be presented for publicity purposes as soon as possible and other reports at intervals. This material to be submitted to the National Directing Council for the use of trade magazines and for the Home Service Newsletter.

IV. *Educational Courses*

(a) Continued course at A.G.A. Laboratory.

(b) Equipment courses at colleges.

V. *Company Development*

(a) Devise means of bringing before Home Service Groups a presentation or study of all Home Service material now available from A.G.A. Headquarters, such as New Home Service booklets, Home Service reports and articles on Home Service in Trade Magazines.

(b) Development of courses whereby this material and that available in local companies is made usable to other departments in the company, such as utilization, service, sales and advertising.

VI. *Service for Household Magazines*

(a) Compile available information from material at Headquarters and member companies to present periodically to "free lance" writers on Household topics and likewise to permanent staffs of household magazines.

(b) Service for Newspapers.

1. Compilation of topics and articles on gas equipment to be used by Home Service Directors in preparation of material for local newspapers.

VII. *Regional Meetings*

(a) An activity to promote further representation of Home Service on the general program of regional meetings, likewise, where advisable group meetings of Home Service Directors in connection with these regional meetings.

(b) Outline of program suggestions for meetings of both types.

VIII. *Research*

Presentation of A.G.A. Laboratory research of interest and use to Home Service Departments.

IX. *Supplement to Inside Activities Booklet*

(a) Supplement of actual demonstrations and talks on commonly promoted gas equipment for use of Home Service Departments.

(b) Supplement of equipment and reference lists for Home Service Departments.

X. *Home Service Manual*

(a) Final completion of last of four booklets on subject of Home Service aims, organization and publicity.

Those present at the meeting were:

Ruth Kleinmaier, chairman, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.; Kathleen Atkinson, Providence Gas Company, Providence, R. I.; Hugh Cuthrell, Brooklyn Union Gas Company, Brooklyn, N. Y.; Karen Fladoes, Equitable Gas Company, Pittsburgh, Pa.; Charlotte Hood, *Gas Age-Record*, 9 East 38th Street, New York, N. Y.; R. A. Maloney, Philadelphia Gas Works, Philadelphia, Pa.; Cornelia L. Newton, New Haven Gas Light Company, New Haven, Conn.; Jane L. Roberts, Roberts & Mander Stove Co., Philadelphia, Pa.; Dorothy Shank, American Stove Company, 4301 Perkins Ave., Cleveland, Ohio; Ruth Soule, Brooklyn Union Gas Company, Brooklyn, N. Y.; Sibyl Stearns, Consolidated Gas Company of New York, New York, N. Y.; F. R. Wright, American Gas Association Laboratory, Cleveland, Ohio, and Jessie McQueen, secretary, American Gas Association Headquarters, New York, N. Y.

New England Directors Meet

ABOUT thirty members were in attendance at the fall meeting of the New England Home Service group with its chairman, Mrs. Carolyn Weber Bixby, presiding at a luncheon meeting held at the Hotel Statler, in Boston. The group was greeted by I. T. Haddock, president of the New England Gas Association.

J. J. McKearin, of the Lowell Gas Light Company, presented the plan of the proposed range advertising campaign which was, in turn, followed by a talk on "Air Conditioning Defined," by Ray Henshaw, of the R. C. Henshaw Company, Boston.

Home Service papers delivered at the A.G.A. Convention were reviewed by Jessie McQueen, of the American Gas Association, following which the group was shown films on "The Ideal Fuel" in the auditorium of the Boston Consolidated Gas Company.

As guests of the Boston Company, in their new service building, in Jamaica Plain, they were entertained at dinner along with the Home Economics In Business Group of Boston, and were later allowed the opportunity to visit the new and modern gas equipped kitchens of the cafeteria, which serves company employees daily.

This was followed by greetings from Walter C. Beckjord, general manager of the Boston company and chairman of the Commercial Section of the A.G.A.; F. D. Cadwallader and other executives of the Boston company. An unusually interesting address on the "Manufacture and Utilization of Gas" was illustrated with a model of a gas plant, gas being produced in the plant during the demonstration. Following this, the entire group was shown through the new building conducted by representatives of the Boston company.

Another meeting of the New England directors will be held in connection with the New England Gas Association convention in February, the date of the Home Service meeting being February 17.

Gasettes

TORONTO SCHOOLS—Miss Jessie Read, director of Home Service of the Consumers Gas Company in Toronto, reports some interesting school work with 225 students from the Ontario Agricultural College, Guelph, in a series of lectures on gas appliances; also a group of seventy girls from the junior dietitian class of Central Technical High School in Toronto.

BROOKLYN UNION GAS COMPANY—The annual report of the Home Service Division of The Brooklyn Union Gas Company reports an attendance of 66,000 women in contact with the company through the Division's work in 1932. An important phase of the work was the instruction in the use of gas appliances which has been given regularly in all class demonstrations. An activity which reached a large number of persons was the instruction given the school groups. A total of 119 such groups, comprising 3,146 children, received instruction at the request of Home Economics teachers. Home calls carried Home Service representatives into 11,094 homes in Brooklyn and Queens where they showed new owners how to use their appliances to the best advantage. Untold thousands were reached in a less direct way through the articles on cooking which Ruth Soule, the home service director, writes weekly for about thirty newspapers circulating in this company's territory and through the radio talks she delivers twice weekly. Other activities carried on include a four-lesson course in the use of appliances given for this company's salesmen, lectures delivered before various employee groups, and supervision of the numerous luncheons held in the country. About 200,000 recipe sheets were distributed.

Good Housekeeping Bulletin

"Cooking With Your Gas Range" is the title of a recent bulletin published by Good Housekeeping Institute.

Home makers' questions on the gas range have been considered and answered by Institute engineers. Information and recipes on oven meals in the gas range, top stove dinners, mixed grill dinners, chief oven dinners, waterless cooker dinners, are all listed in a very interesting booklet which can be secured from Good Housekeeping Institute, New York, N. Y., for 15 cents a copy.

Staten Island Consumers Get Lower Gas Rate

WILLIAM J. WELSH, president and general manager of the New York and Richmond Gas Company, Staten Island, N. Y., announced that his company has filed with the Public Service Commission and has put into effect as of January 1, 1933, a new schedule of gas rates which will give decreased rates to regular users of gas. The commission has approved the new rate schedule.

The changes and reductions in the company's gas rates, brought about by the rate schedule now filed with the Public Service Commission, are estimated to provide a saving to the company's customers, on the basis of 1931 volume of business, of at least $62,400.

Mr. Welsh stated that this reduction in gas rates in Staten Island is made in the face of adverse business conditions and the decrease in revenue experienced by the company for the twelve months ending November 30, 1932, of about $34,000, as compared with the preceding twelve months' period. However, the company hopes that this loss will not be a continuing one and will be overcome with the improvement of present business conditions.

Pasteurizing Vinegar

PASTEURIZATION of vinegar now takes its place among the hundreds of other practical industrial applications of gas. The vinegar passes through the copper coils of a water heater just as water flows through a standard water-heater installation.

Gas has proved the ideal fuel for pasteurization, due to the absolute necessity for temperature control and uniformity. When the vinegar is pumped from the wooden storage tanks through the heater coil for pasteurization it must be heated to a temperature of between 155 and 160° F. If the temperature is below 155°, pasteurization does not take place, and if it exceeds 160°, certain healthful bacteria are destroyed. Since the installation of gas, the heat can be regulated to the finest precision automatically, thus assuring perfect pasteurization.

After pasteurization, the sediment in the vinegar is removed by filter boxes. It is then ready to be bottled, capped, and labeled. By means of a special device the caps are placed on the bottles unthreaded and each cap is threaded to fit those on the bottle. Breakage of bottles when the hot vinegar is poured into them has been materially reduced under present facilities by preheating the bottles with water which has passed through coils in the vent pipe of the heater.

Mr. Deitsch Resigns As Group Manager

PHILIP O. DEITSCH has resigned as manager of group activities, Manufacturers' Section, American Gas Association, according to announcement made January 19 by D. B. Stokes, section chairman. In his announcement to members of the Manufacturers' Section, Mr. Stokes said:

"It is with regret that we announce the resignation of Mr. Deitsch, effective February 1, 1933.

"Mr. Deitsch is leaving the employ of the Association to engage in his own business of trade association management.

"It is not contemplated that the position held by Mr. Deitsch will be filled for the balance of the association year, because the work is so well organized that it can be carried on by members of Headquarters' staff without any loss to its effectiveness and efficiency.

"Correspondence, therefore, relating to group activities should be directed to Group Activities, Manufacturers' Section, American Gas Association, 420 Lexington Avenue, New York, N. Y."

"Modernize Your Home Show" In New York Next Month

THE first "National Modernize Your Home Exposition" will be held at Madison Square Garden, New York, this year from March 28 to April 1, inclusive, at which will be displayed the latest trends in building materials and appliances for the home and commercial building owners.

Headquarters of the exposition are in the Waldorf-Astoria Hotel where an official dinner for the building trade will be held on the exposition's first night. The purposes of the exposition, as reported by its management, will be "to stimulate replacement business in the building trades by intelligently laying before the home owner a comprehensive variety of the latest economy-effecting and comfort promoting building materials, devices and appliances on the market so that he might not only appreciate the value of his property through renovating it, but also live a fuller, richer life as the result of modernizing his home according to Twentieth Century standards of living."

INDUSTRIAL GAS SECTION

E. L. WILDER, Chairman C. W. BERGHORN, Secretary F. B. JONES, Vice-Chairman

Bibliography of Recent Industrial Publicity

THE Publicity Committee, Industrial Gas Section of the American Gas Association, directs attention to the following articles recently published:

"Long Beach Plant Bonderizes Ford Steel Parts in Quantity." Automotive Industries, April 16, 1932.

"Finishing Ford Bodies." American Machinist, May 5, 1932.

"Combination Forge Furnace and Steam Boiler Saves Fuel." Iron Age, March 31, 1932.

"Color Pioneers." Ceramic Age, June, 1932.

"Preparing Aluminum for the Market." Metals & Alloys, July, 1932.

"Hard Surfacing Oil Well Tools." Western Machinery World, May, 1932.

"Foundry Equipment at the Mare Island Navy Yard." Western Machinery World, April, 1932.

"Special Furnace Bright-Anneals Copper Wire in Steam Atmosphere." Iron Age, July 28, 1932.

"Heat Treatment on a Jobbing Basis." American Machinist, August 31, 1932.

"Pipe Treating and Fabrication." Power Plant Engineering, May 15, 1932.

"Makes Conduit by Continuous Gas Welding Process." Iron Age, April 21, 1932.

"Design and Operation of Carbon 'Test' System Is Described." Dry Cleaning Progress, August, 1932.

"San Francisco's Largest Steam Station Now Uses Natural Gas Fuel." Steam Plant Engineering, May, 1932.

"Power from Pipe Lines to Wires." Scientific American, June, 1932.

"Natural Gas Fuel for Power." Mechanical Engineering, May, 1932.

"Furnaces and Hammers for Forging Aluminum." Metal Progress, July, 1932.

"Cutting Costs in Finishing and Heat Treating Automotive Parts." Mill & Factory Illustrated, August, 1932.

"Chains Benefit by Centralized Production (Restaurants)." American Restaurant, August, 1932.

"Making Glass Containers Automatically." Ceramic Age, September, 1932.

"Cincinnati Plant Uses Modern Methods." Pacific Laundry Journal, August, 1932.

"Sun and Gas Produce Salt." Mill & Factory Illustrated, May, 1932.

"Heat Treating Methods in the Manufacture of Tractors." Pacific Factory, May, 1932.

"Hansell Elcock Company." Heat Treating and Forging, April, 1932.

"Whitman and Barnes Inc." Heat Treating and Forging, May, 1932.

"Super Heated Steam in Industrial Processes." Steam Plant Engineering, August, 1932.

"Boeing Airplane Company." Heat Treating & Forging, July, 1932.

"Lincoln Car Made More Durable with Heat." Heat Treating and Forging, July, 1932.

"Soaking Pits without Checkers." Blast Furnace & Steel Plant, May, 1932.

"Automatic Gas-Fired Still for Dry Cleaning Clothes." Laundrymen's Guide, August, 1932.

"Continuous Gas Ovens Bake Enamel on Trim and Mouldings." Automotive Industries, July 2, 1932.

"Oven Length Controls Finishing Time in Ford Plant." Automotive Industries, May 14, 1932.

"Enameling Installation for Automobile Parts." Metal Cleaning and Finishing, May, 1932.

"Long Beach Station Generates Electricity with Gas." Industrial Power, April, 1932.

"Gas Fires Biltmore's Boilers." Industrial Power, July, 1932.

"Automotive Finishing." Industrial Finishing, June, 1932.

"Copper Wire Bright Annealed in Atmosphere of Steam." Fuels & Furnaces, August, 1932.

"Mare Island Navy Yard Foundry Practice." Industrial Record, September, 1932.

"High-Pressure Steam Plant Uses Gas to Generate Electricity." Industrial Power, October, 1932.

"Chinaware—5000 B.C. to Now." Institutional Jobber, August, 1932.

"Gas Has Growing Market in the Industrial Field." The Business Week, June 29, 1932.

"Non-ferrous Melting at Mare Island." Foundry, December, 1932.

"The Manufacture of Bolts and Nuts." Wire & Wire Products, December, 1932.

"Zinc Alloys for Die Castings Recently Improved." Metal Progress, December, 1932.

"Handling Fluctuating Load with Natural Gas." Steam Plant Engineering, November, 1932.

"Forging and Heat Treating Small Tools." Heat Treating & Forging, August, 1932.

"Vaughn Motor Works, Inc." Heat Treating & Forging, September, 1932.

"Furnace Bright Anneals Copper Wire." Heat Treating & Forging, October, 1932.

"Western Forge Plant of General Metals Corp." Heat Treating & Forging, October, 1932.

"Lake Erie Nut and Bolt Company." Heat Treating & Forging, November, 1932.

"Automatic and Continuous Skelp Mill Made Possible with Gas." Heat Treating & Forging, November, 1932.

"Auxiliary Service Helps Newspapers." National Printer Journalist, December, 1932.

"Progressive Improvements Made in Technique of Bolt Manufacture." Steel, November 18, 1932.

"Gas Fuel for Steam Power." Manufacturers Record, December, 1932.

"New Principle Applied to Bright Annealing Copper Wire." Wire & Wire Products, August, 1932.

"Adornment." Industrial Record, November, 1932.

"Anneals Copper Wire in Atmosphere of Steam." Industrial Record, December, 1932.

A. G. A. Presents New Work on Forging

INDUSTRIAL Service Letter No. 11 is devoted to "Forging." It includes all data submitted to the Progress and Utilization Data Committees since 1925, as well as data selected from articles in the technical and trade press. Since the bare statistics of results do not tell sufficient of the circumstances surrounding each individual installation, this letter embraces additional sections on the general practice of forging and the design of equipment. The extensive A.G.A. research in the forging field has also been briefly summarized and the principal observations made have been condensed to a convenient and usable form.

To make the fuel consumption data of greatest usefulness, they have been divided as nearly as possible into groups covering similar work and arranged in order of increasing fuel consumption. The best results can, therefore, be seen at a glance and comparisons readily made for other working conditions.

The actual data sheets are kept at Association Headquarters, and they contain somewhat more detailed information than has been summarized in the tables that are presented.

The work is divided into four parts—Part I, "Furnace Design"; Part II, "Data Sheets of Gas Forging Installations"; Part III, "Gas vs. Oil for Forging," and Part IV, "Forging Practices and Research." Copies of "Forging" are available at 25 cents each upon application to the Industrial Section, American Gas Association, 420 Lexington Avenue, New York, N. Y.

NATURAL GAS DEPARTMENT

GEORGE W. RATCLIFFE, Chairman A. E. HIGGINS, Secretary FRANK L. CHASE, Vice-Chairman

Eastern Natural Gas Sales Conference To Be Held in Pittsburgh

THE 1933 Eastern Regional Natural Gas Sales Conference will take place at the Hotel Schenley, Pittsburgh, Pa., March 2 and 3, according to agreement reached at a meeting of the Eastern Council held last month. This annual event is sponsored by the Commercial Section of the American Gas Association.

In arranging the program an effort was made to include the more important industrial topics on the first day's schedule of business. E. L. Wilder, chairman of the Industrial Section, has been invited to preside at the afternoon session of the opening day.

The tentative program arranged is as follows:

THURSDAY, MARCH 2, 1933

10:00 A.M.

Opening Remarks by the Chairman.
B. H. Gardner, Columbia Engineering & Management Corp., Columbus, Ohio.

Keynote Address.
Arthur Hewitt, President, American Gas Association, Toronto, Ont., Canada.

New Aids in Selling Industrial Gas.
Garnet R. McKee, Eclipse Fuel Engineering Co., Rockford, Ill.

THURSDAY, MARCH 2, 1933

2:00 P.M.

Presiding: E. L. WILDER, *Chairman*
Industrial Gas Section, A. G. A.
New York, N. Y.

Utility Advertising Today.
W. H. Hodge, Byllesby Engineering & Management Corp., Chicago, Ill.

The Competitive Situation in Commercial Sales.
G. W. Turner, Equitable Gas Co., Pittsburgh, Pa.

Present Trends in Industrial Sales.
E. R. Rothert, Union Gas & Electric Co., Cincinnati, Ohio.

FRIDAY, MARCH 3, 1933

9:00 A.M.

Presiding: E. L. KEIGHRON

Monongahela West Penn Public Service Co., Fairmont, W. Va.

Selling Central Heating During 1932.
C. E. Bennett, Binghamton Gas Works, Binghamton, N. Y.

How Gas Utilities Can Sell Gas Refrigeration.
R. F. Calloway, Faraday Refrigerator Corp., Dayton, Ohio.

Executive Evaluation of Sales Activities.
E. M. Tharp, Ohio Fuel Gas Co., Columbus, Ohio.

FRIDAY, MARCH 3, 1933

2:00 P.M.

Presiding: S. B. SEVERSON

Republic Light, Heat & Power Co., Inc., Buffalo, N. Y.

What Utility Cooperation Means to the Heating Contractor.
Mr. Green, Pittsburgh, Pa.

Employee Selling.
(Including Space Heating references.)
Geo. L. Scofield, Dominion Natural Gas Co., Ltd., Buffalo, N. Y.

Application of Circulated Air Heating to Industrial Gas Installations.
Mr. Nourie, Dispatch Oven Co., Pittsburgh, Pa.

Members of the *Eastern Regional Natural Gas Sales Council* follow:

B. H. Gardner, *chairman*, Columbia Engineering & Management Corp., Columbus, O.; F. B. Jones, Equitable Gas Co., Pittsburgh, Pa.; E. E. McCormick, Peoples Natural Gas Co., Pittsburgh, Pa.; Robert Montgomery, Louisville Gas & Electric Co., Louisville, Ky.; P. L. Mulkin, United Natural Gas Co., Oil City, Pa.; R. E. Polk, Equitable Gas Co., Pittsburgh, Pa.; W. F. Reid, The Manufacturers Light & Heat Co., Pittsburgh, Pa.; S. B. Severson, Republic Light, Heat & Power Co., Buffalo, N. Y.; B. H. Smyers, Equitable Gas Co., Pittsburgh, Pa.; F. H. Stone, Equitable Gas Co., Pittsburgh, Pa.; T. E. Wood, The Manufacturers Light & Heat Co., Pittsburgh, Pa.

Have You Changed Your Address?

When members of the American Gas Association change their address, Headquarters should be notified promptly because it will minimize delays and at the same time save money.

In case of unclaimed mail, a postmaster's advice card costs 2 cents. These notices formerly were delivered free. If you change your address without notice, it means that copies of The MONTHLY and other mailings to your former address are held by your postmaster and he forwards headquarters a notice. Hundreds of these cards are received monthly. A considerable sum can be saved the Association by members if they will see that their correct address is in the records at Headquarters.

The coupon below is for your convenience.

American Gas Association,
420 Lexington Avenue,
New York, N. Y.

Below is my new address:

Name .....

New Address.....

.....

Old Address.....

.....

PUBLICITY AND ADVERTISING SECTION

JAY C. BARNES, Chairman ALLYN B. TUNIS, Secretary HENRY OBERMEYER, Vice-Chairman

Advertising From the Viewpoint of the Utilities*

By William H. Hodge

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Wm. H. Hodge

THE mere act of advertising on the part of public utility companies contends with unusually severe handicaps.

Proposals are now being made in some states, according to newspaper sources, to forbid utilities to advertise at all. One of the favorite charges of the public utility critics is that the motive back of utility advertising is to control the press. Many stories and cartoons have been printed to bolster up this thought. Even the neutral-minded profess inability to understand the necessity for advertising by industries, some of which seem to enjoy monopoly privileges.

Of course we are not alone in the clinic. All commercial institutions and methods are at the sharp end of the microscope. Advertising in general is gazing anxiously at the surgeons and hoping that only pathologists will be necessary.

Although Major Namm, a prominent Brooklyn merchant, has pronounced advertising very sick, and H. A. Batten, of the N. W. Ayer agency, has declared that certain recent trends in advertising conceptions are a "stench in the nostrils of the civilized world," my own view is considerably more cheerful.

After saying some rather caustic things myself last fall, conveying the same sort of disgust as Major Namm and Mr. Batten, I reflected that, while the kind of advertising under fire undermined public respect and confidence in all advertising, at the same time its volume actually was small compared with the great mass of truthful, dignified and decent copy.

Despite the noisy offenders, a far greater proportion of the advertising copy family has remained respectable. This sterling middle class will somehow persist and carry on long after the blatant, vulgar and unscrupulous practitioners have reformed, or been outlawed.

Possibly unknown and mysterious forces have had something to do with the temporary degeneration of advertising power, although I don't exactly see how.

And that reminds me of a very short story told me by my chief, J. J. O'Brien. He said: "I was stopped today by the cleverest panhandler I ever met. This old codger grasped my arm, looked slyly in my face, held out his hand, and squeaked: 'Mister, what have you done today for technocracy?' "

But getting back to my subject, here are the points:

1. Should laws be passed prohibiting utility advertising?

2. What is there to the charge that utility advertising is done principally to corruptly influence the press—in plain language, to bribe the editors and writers?

3. Do requirements exist justifying utility advertising for business and broadly social reasons?

The threat of legislation is not to be dismissed lightly. Already two states have laws prohibiting utilities from merchandising appliances necessary to use the services supplied to the public. Attempts will be made in a number of other states this winter to enact similar legislation.

No real and thorough inquiry has been made to calculate just how such unnatural inhibitions in the long run will affect the convenience, the personal safety and the purse of the consuming public. It is known that apparently, in some places at least, no one has benefited where such laws are effective.

From anti-merchandising legislation to anti-advertising legislation is but a step. In fact, anti-merchandising laws automatically cut out about 44 per cent of electric and gas company advertising. The same specious arguments as to how the expenditures increase or keep up rates (charges for service) may be applied. The same line of talk as to contact with customers through meter lists, monthly billings, and of alleged other unfair advantages, can be spun out. In addition the horrifying theory that the utility's gold, in exchange for advertising space, may or does blunt the editorial conscience, and thus poison the sources of popular information, is thrown up as a clincher.

Well, what difference does it make to you who are not in the utility business, if there should be a law passed about it?

Aside from your interest as citizens and consumers is your business or professional interest—in other words, your bread and butter. You never heard—not yet—of a proposal to pass a law prohibiting department stores, or shoe manufacturers, or tailors, or locksmiths, or restaurants, from advertising. But you will if anti-utility advertising laws get popular.

They merely pick us out first because we are easy to hit, easy to misrepresent, easy to build up prejudice about. If they hog-tie us so that we can't give good service and cannot keep on building up our business, and, by building up our business further reduce rates, they'll get around to you.

When you recall a popular fallacy that advertising is bound to increase the price of any product advertised, and recall the activities of a certain school of economists and research workers, my prognostication is a long ways short of fanciful. It's something to think about.

There has been some attempt by government to regulate advertising through the Federal Trade Commission. More will be heard along these lines, unless advertising takes seriously to heart the codes of the American Federation of Advertising and the affiliated Better Business Bureaus, and regulates itself.

The utilities are used to governmental regulation and expect more regulation. They are hopeful, however, of a better quality of whatever supervision is to be exercised by the Federal Government, compared with that which has gone before. Regulation is in its infancy. With the railroads as the pathetic victims of the kindergarten stage of regulation, the utilities may come out somewhat better as regulation proceeds through the grades and acquires practical wisdom.

But the heavy hand of regulation will surely catch up with advertising if this particular business—all branches—doesn't look after its own affairs.

Now what is there to the charge that utility advertising is done principally to corruptly influence the press—in plain language, to bribe the editors and writers?

In the first place, I wish to declare a principle, or rather a set of principles, to which I have held consistently through twenty-three years of supervising utility advertising. It is this: a public utility company, by its very nature, is a proper subject for news and editorial comment, public and private discussion, and for criticism for good reason or no reason. It is simply subject to these things whether it deserves castigation or deserves praise. And, incidentally, a newspaper, as a business affected with a public interest, is in the same class.

This being true, a utility company has no right to resent honest criticism, although it has a common right to openly and frankly present its side of the case. It has no justification for extending or withholding ad-

*A talk before the Pittsburgh Advertising Club January 24, 1933.

vertising patronage because of any editorial or news policy directly affecting itself, on the part of any reputable newspaper. If there are good business reasons why the utility should advertise, these, not the policies of the medium, should govern its decisions.

It is substantially upon these considerations that the utility advertising of the country has been conducted. There are exceptions to every rule, but this is generally true. Misrepresentations, such as have appeared from time to time, are a challenge not only to utility managers, but to the integrity of newspaper publishers and editors.

Here is an example of what I mean by misrepresentation. In the Federal Trade Commission investigation, statements by advertising men were introduced to the effect that the utilities either had spent or proposed to spend from $28,000,000 to $30,000,000 for all kinds of advertising in a given year. These figures obviously were an estimate, or more properly, a guess, made by individuals from rather sketchy information. They attempted to cover all kinds of utilities; electric light and power, gas, electric railways, telephones, telegraphs, water, and in some instances the manufacturers of electrical, gas and other machinery and appliances. They were, as a matter of fact, unreliable and not fit for any kind of evidence.

A certain part of the press used these overall personal estimates to make it appear that the electric light and power industry alone—what they call the "Power Trust"—was spending such amounts in an effort to influence or control the newspapers. It is from such distorted publicity as this, supplemented by the foolish statements of a few utility subordinates, speaking individually, that the ground was prepared for the charges which I am discussing and attempting to refute.

There are no authentic and complete data concerning the advertising expenditures of the utilities of the United States. With respect to the electric light and power companies alone, I probably have devoted more attention to the study and analysis of their advertising expenditures than any one else. The most thorough effort yet made to compile and classify actual information was under my direction as a national committee chairman for the year 1926.

Information was received from at least one-half of the industry, and from this basis careful estimates were made for the industry as a whole, resulting in a total of approximately $10,000,000 for advertising expenditures of all kinds for the year. This is the same amount as reported appropriated for advertising a single make of automobile in one of the boom years.

However, it was found that only 62 per cent of the $10,000,000 went for newspaper advertising; about 10 per cent was spent for direct-mail; 5 per cent for billboards and posters, while the balance of 23 per cent was accounted for by miscellaneous purposes, including radio, electric signs, publications other than newspapers, salaries, overhead, art and mechanical.

An analysis was made under four general heads of the purposes for which the total was spent. It was found that—

43 per cent went for advertising electrical appliances.

10 per cent for specific load building activities.

37 per cent for institutional, including general load building.

10 per cent for selling company securities.

Later I made a similar inquiry covering the year 1928 to obtain the best information we could for a brief which I prepared for submission to the Federal Trade Commission. Data was obtained by questionnaires for companies serving 42.3 per cent of all the electricity users in the United States. From this I made the best estimates I was capable of for the whole industry, finding that for the year 1928, the total advertising expenditures were approximately $13,000,000, of which less than 65 per cent, or $8,425,000 was spent with the newspapers. Contrast this with the figures of 28 to 30 millions. It figured out an average of $582 for all the newspapers in the country, large and small. I calculated also from the best available data that it represented about 1 per cent of all advertising expenditures in the newspapers of the United States.

If the publishers of this nation are of the breed that will sell their editorial birthright for a 1 per cent mess of pottage, I can't understand how we got this far, for better or worse.

In 1928 I found that the proportion of the total spent for appliance advertising had increased to 44.1 per cent of the whole; for specific service building to 24.1 per cent; and had decreased for institutional and general load building to 26.5 per cent; for selling securities to 5.3 per cent of the whole.

In the two years the proportion spent for newspaper advertising had increased by 2.5 per cent of the whole; direct-by-mail decreased 2.7 per cent; outdoor increased 4.5 per cent. Miscellaneous, including radio, amounted to 18.7 per cent.

And, now to wind up this particular phase. Total estimated advertising expenditures of the electric light and power group in 1928 amounted to .68 of 1 per cent of total gross revenues. The gas business in the same year spent slightly less, or roundly .6 of 1 per cent of gross revenues. These percentages are so much smaller than that reported for other large manufacturing and wholesaling industrial groups that comparison looks ridiculous.

Coming now to the third point in this discussion: The justification or need for utilities advertising at all.

These industries showed the way in both mass production and mass distribution. Electricity and gas have been built up on thoroughly sound economic principles. Increasing the volume of delivered production enabled greater use of the investment more hours per day and days per year, thereby lowering costs per unit of service and the selling price of the service.

Not until these industries learned how to go out and actually *sell* their services were either dividends or low rates possible. It is true that a considerable number of people were willing to use some of the service, but they had to be persuaded to use enough service to justify the economics of the whole scheme and make the transaction actually profitable to them—the consumers. Let's see how it worked out during seven years of active selling and advertising effort.

In 1926 the electricity users throughout the length and breadth of the United States:

Paid an average monthly bill of	$2.49
Used monthly kilowatt-hours of	35½
Paid per kilowatt-hour	$.07
In 1932 they paid an average monthly bill of	$2.80
Used monthly kilowatt-hours of	50
Paid per kilowatt-hour	$.0559

In effect the average customer spend 31 cents more for which he obtained 14½ additional kilowatt-hours at a cost of about 2 cents per unit. To put it in another way, he increased his monthly bill 12½ per cent for which he received 40 per cent more value, and his price or rate per total kilowatt-hours which he used was reduced 25 per cent. Also as something of a paradox, if it hadn't been for the depression, he would have employed still more energy and reduced his rate still lower.

Leave theory and mathematics to one side. Years ago when utility holding companies, like Standard Gas and Electric Company, started to manage utility properties they discovered that utilities which had employed vigorous advertising and selling methods were much more successful than those that did not. Most of the broken down properties, with poor service and high rates, were those that sat back and let business walk in. The contrast was startling. In every way the public came off better if it was served by a company which practiced advertising. The investors, likewise, were better rewarded as the result of the application of modern methods.

These object lessons caused my organization to form one of the first advertising departments of its kind and to stress the importance of advertising in successful utility operation from that day to the present.

I have already shown during a seven-year period of advertising and selling in the electrical field what happened to average consumption and price. If advertising expense works this way, on what ground can the kilowatt-hour consumer have a complaint? Are his rates increased by advertising under any kind of reasoning? In analyzing the 1926 expenditure figures I tried to find out.

First, I observed that 43 per cent of the money went for appliances or merchandise advertising, and ordinarily is carried as part of the selling cost of that merchandise; then that 10 per cent was for selling company securities and was charged up to that

account. This left 47 per cent to go into utility operating expenses. I worked it down to the average bill and found that the burden per customer was about three-quarters of one cent—less than a penny per month. Further, the rate experts told me that there was no possible way of translating such a tiny saving into rate schedules. Double or quadruple the alleged advertising burden and we would still have the same difficulty. Meanwhile the additional volume of business which advertising helps to put on, keeps forcing down the customers' rates and bills.

Our services have always made their way against competition—that is, other, and frequently cheaper, ways of doing things compared with what we have to offer. Our appeal must be to the public as a whole—the mass. New appliances for reducing labor, making life pleasanter, saving people time and money, come forward rapidly. It may be argued with reason that far from refraining from advertising it is the utilities' obligation to inform their customers of these things and how to use them.

As recent examples, ask any industrialist if the automatic refrigerator could have reached the present stage of development in a few years without liberal advertising. Last year something like 2,300,000 electric clocks were sold, whereas a short time ago no household had such an article. Two and a half million people could not even have had their attention called to electric clocks without liberal advertising.

The next big sales effort in the electric business will be electric cooking and electric water heating. Does anyone believe that broad public acceptance can be obtained without a great quantity of advertising of practically all kinds and descriptions? And in this effort, as in many others, it will be found that the utility—and the utility only—must shoulder the major part of the selling and advertising burden.

It pays a public to know its utility companies. Institutional advertising is a broad term. It is distinguished from advertising for selling goods or services, and covers such things as the explanation of company policies and rate schedules, descriptions of properties and how the public can use them to the best advantage; changes of company methods and practices; improvements and extensions; changes in car routings and schedules; community development; industrial development—in brief, information to keep the public properly informed in its own interest.

Even our critics see the light, and a few days ago I read the following writing of Arthur Brisbane:

"Private and public ownership of public utilities take different views of the consumer. Private power companies in America do all they can to increase consumption, developing and advertising many electrical devices to lighten housework, washing machines, vacuum cleaners, electric irons, etc. The Russian government, which owns electricity and everything else, issues an order cutting down, by 50 per cent, the use of electric current in Russian households. Russia's government needs power for industry. Here, to the horror of the technocrats, we produce enough and too much for both. Perhaps our system, while imperfect, is better, on the whole."

If there is anything wrong—morally, commercially or legally—about utilities advertising today, it is merely its inadequacy. There is not enough of it being done. Advertising in its various forms can be employed to a much greater extent than is the case at present. If this were so the pace of development would be accelerated, the maximum benefits of the services brought to many additional people in quicker time, and the volume of output built up, so that the price per unit of service could be more rapidly reduced.

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The 1930 Portfolio of the Public Utilities Advertising Association is considered by many utility advertising experts as one of the outstanding publications of its kind, and it is widely used for reference purposes. It includes institutional, financial, commercial, gas, electric, transportation and water advertisements produced by some of the most prominent advertising men and women from coast-to-coast.

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These 500 live, business-producing ideas occupy 162 pages—12 x 15 inches —bound in cloth and imitation leather —one of the biggest values ever offered utility advertising departments.

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AMERICAN GAS ASSOCIATION,

320 Lexington Ave.
New York, N. Y.

TECHNICAL SECTION

J. A. PERRY, Chairman | H. W. HARTMAN, Secretary | O. S. HAGERMAN, Vice-Chairman

Distribution Committee Lays Plans for Pittsburgh Conference

A MEETING of the Distribution Committee of the Technical Section was held January 16, in the offices of the Consolidated Gas Company of New York, with the following members present:

C. A. Harrison, chairman, H. L. Doherty & Co., New York, N. Y.; H. W. Battin, vice-chairman, The United Gas Improvement Co., Philadelphia, Pa.; J. A. Perry, chairman, Technical Section, The United Gas Improvement Co., Philadelphia, Pa.; Geo. H. Boyd, Consolidated Gas Co. of New York, New York, N. Y.; J. H. Braine, Brooklyn Union Gas Co., Brooklyn, N. Y.; F. M. Goodwin, Boston Consolidated Gas Co., Boston, Mass.; Erick Larson, Long Island Lighting Co., Bay Shore, L. I., N. Y.; E. A. Munyan, Union Gas & Electric Co., Cincinnati, Ohio; C. C. Simpson, Consolidated Gas Co. of New York, New York, N. Y.; C. H. Stevick, Consolidated Gas Co. of New York, New York, N. Y.; G. W. L. R. Travis, Consolidated Gas Co. of New York, New York, N. Y.

Chairman Harrison announced the following subcommittee appointments:

Subcommittee on Pipe Coatings and Corrosion—Geo. H. Boyd, chairman.

Subcommittee on Pipe Joints—Erick Larson, chairman.

Subcommittee on Meters—C. H. Stevick, chairman.

Subcommittee on Unaccounted-for Gas—J. M. Pickford, chairman.

Subcommittee on Cast Iron Pipe Standards—C. C. Simpson, chairman.

Mr. Harrison indicated that in the organization period a great many suggestions had been received for committee activities on which it had been impossible to follow through due to the necessity of keeping the committee organization within reasonable bounds. In order, however, that such questions should receive consideration, it had been decided to assign to members of the main Distribution Committee, not acting as chairmen of specific committees, some of the suggested activities, and request them to act as sponsors for the activity throughout the year. It was further explained that such sponsorships involved:

(a) Keeping in touch with developments throughout the year affecting the activity assigned.

(b) Advising the committee of such developments with any direct action they cared to recommend in the form of:

1. A paper at the Conference or at the Convention.
2. An article in the A. G. A. MONTHLY.
3. If essential, the formation of a subcommittee.

He further announced such activities and their sponsors as follows:

Operating methods, records, routines—J. H. Braine, sponsor.

Portable equipment and accessories—F. M. Goodwin, sponsor.

Servicing appliances—F. A. Lydecker, sponsor.

Distribution design—M. I. Mix, sponsor.

Regulators and pressure regulation—E. A. Munyan, sponsor.

Subcommittee Activities

Geo. Boyd advised that within two weeks, there would be available in printed form copy of a report from Dr. Scott Ewing on the results of an examination of the latest test samples removed from the ground, together with a report of the Committee on Pipe Coatings and Corrosion. As this report contains valuable information to companies concerned with pipe protection, it is planned to make an immediate distribution of the report to all delegates of gas company and manufacturer company members, without waiting for either the Distribution Conference or for the Convention. This distribution will be supplemented by a circular letter addressed to the members of the Technical Section, advising them that one copy of the report has been sent to their company delegate, and that if additional copies are desired, they may be obtained at a small cost from A. G. A. Headquarters.

Mr. Boyd further reported that an inspection trip of field lines was being planned for Dr. Ewing, with a view to enabling him to report on the actual condition of pipe in the field both covered and uncovered, and of correlating this with a study of the soil conditions surrounding each line. Members of the committee were requested to assist in making this trip of the utmost value by advising of any overhauling work they have definitely in mind. He further reported that Dr. Ewing was at present busy on the development of a laboratory method designed to indicate the action of different soils, as well as the behavior of specific pipe and coatings in such soils.

The committee will be prepared to submit a report at the Distribution Conference involving a contribution on the experience of all members of the committee and including papers by outside experts on the economics of pipe protection. Contributions are also expected from Dr. Gordon Scott, Research Associate of the American Petroleum Institute.

C. H. Stevick reported that a meeting of the Meters Committee would be held in New York on January 23, at which steps would be taken to consider putting into effect their program of activities which would include consideration of such subjects as meter test tolerance; recommendations as to limitations that would be just to both companies and consumers; discussion of method of computing per cent of error in meter testing; up to date report on the use of semi-chrome leather for diaphragms and other material. Full discussion was had on the request of a number of members that the Meters Committee should give full consideration to the measurement of large volumes of gas, and this matter will be coordinated with the activities of the Natural Gas Department in this connection. Continued study of the use of gas or air as a test medium, and continuation of the work on diaphragm dressings initiated by Mr. Anthes, will also be considered.

Mr. Stevick indicated that all of these activities had been suggested from various sources, and the committee would attempt to arrive at a definite program giving as much consideration to each subject as possible with a view to making a complete report at the Distribution Conference. Ways and means of proving meters in place; specifications for paint for meters; etc., had also been received as suggestions resulting from the recent meeting of the Managing Committee.

Mr. Larson reported that while it had not been possible to hold a meeting of his Subcommittee on Pipe Joints, the personnel was completed and in so far as he had been able to make a study of the various activities, the major accomplishment which he thought could be consummated this year would be the preparation of standards for the testing of all types of joints, particularly the newer types of mechanical joints at the A. G. A. Testing Laboratory. It was felt that when such standards were developed to the point of approval, it would be most helpful in enabling manufacturers to submit newer types of joints to the Laboratory and would be a means of keeping the operating members informed of developments along such lines. He reported continued progress with regard to the development of the weld

test meter under an appropriation granted by the Executive Board. He felt the committee could make a most constructive presentation on the above meter before the Distribution Conference and possibly have available by that time a report on mechanical joints as well. He indicated the need for further laboratory research with regard to gaskets.

In the absence of J. M. Pickford, chairman of the Subcommittee on Unaccounted-for Gas, the secretary reported complete organization of the committee, which is endeavoring this year to conduct all of its work by correspondence. The report for the Distribution Conference will probably include material on the following subjects:

"Discussion of modern methods for dealing with electrolysis conditions—detection and alleviation"; "Experience with gas leakage detectors—opinions as to their use and theory involved in the use of detectors," and "Field testing of large capacity meters."

Distribution Conference

It was decided to hold the Distribution Conference either on Monday and Tuesday—April 3 and 4—or Monday and Tuesday—March 27 and 28. The secretary was instructed to make a selection of the dates which would avoid conflict with other meetings of state and district associations.

After full consideration of the most desirable location for the Conference, the matter was left with the secretary and chairman who selected Pittsburgh. It is hoped to make a preliminary program with regard to the subjects to be considered by the Conference available for publication in an early issue of the MONTHLY.

Pacific Coast Gas Association

Mr. Harrison submitted to the various subcommittee chairmen the following outline of the technical organization of the Pacific Coast Gas Association, and urged that everything be done to coordinate and assist in the splendid program of that organization.

Organization

The organization of the Technical Section of the Pacific Coast Gas Association is now practically complete, the various committees have outlined their programs, work is actively under way, and everything points to a very successful and valuable association year. The general organization scheme remains the same as in former years, with the committees divided into the three main subdivisions of Distribution, Natural Gas Transmission, and Production. Subcommittees are formed under these three main divisions, and in some instances the subcommittees have themselves been further divided—the purpose being to spread the work as much and as definitely as possible and to encourage individual responsibility.

Policies

As far as possible the program has been outlined to attack those subjects which are of greatest interest and importance to the industry and upon which definite and authentic information can be obtained. Quality will be sought rather than quantity, through a relatively small number of committees, with a wide personnel distribution. As a means of establishing a code of quality, it is proposed to form a Publications Committee which will judge all committee reports and decide whether they merit publication in the Association Proceedings, or whether they should be continued for one or more years longer, to complete or round out the information before publication. If any reports are completed in time they will be submitted at the proposed Regional Conferences at Los Angeles in March, and in the Northwest in June. It is also proposed to limit the reports presented and discussed at the annual Convention to the few that will be the most valuable and interesting and permit of ample time for discussion. This selection may also be made by the Publications Committee.

The personnel and program of the various committees is as follows:

DISTRIBUTION COMMITTEE

F. A. Hough, Southern Counties Gas Co., Chairman

Pipe Protection Subcommittee

Personnel: O. L. Wrestler, Los Angeles Gas and Electric Corp., chairman; C. P. DeJonge, San Diego Consolidated Gas & Electric Co.; Chris Goldcamp, San Diego Consolidated Gas & Electric Co.; A. B. Allyne, Southern Counties Gas Co.; H. J. Keeling, Southern Counties Gas Co.; D. A. Hiskey, Southern California Gas Co.; M. T. Burton, Southern California Gas Co.; L. L. Biggs, Southern California Gas Co.; R. C. Terradell, Los Angeles Gas and Electric Corp.; B. A. Williamson, Los Angeles Gas and Electric Corp.; Clark Taylor, Los Angeles Gas and Electric Corp.; W. R. Schneider, Pacific Gas & Electric Co.; A. E. Englebright, Pacific Gas & Electric Co.

Program: 1. Soil survey indications vs. actual rate of pitting. 2. Ground moisture—seasonal variation. 3. Pipe coatings materials for special uses. 4. Cathodic protection. 5. Electrolysis mitigation practices.

Distribution Design Subcommittee

Personnel: N. L. Hoff, Los Angeles Gas and Electric Corp., chairman; A. B. Myers, Southern California Gas Co.; S. W. Binckley, Southern California Gas Co.; Don C. Murphy, Southern California Gas Co.; L. O. Howell, Los Angeles Gas and Electric Corp.; R. U. Fitting, Los Angeles Gas and Electric Corp.; C. P. DeJonge, San Diego Consolidated Gas & Electric Co.

Program: 1. Demand meter studies to test the validity of equations and methods presented in former reports on load factors and diversity of consumer load by individuals and groups. 2. Solution by graphical means of network flow problem. 3. Problems in economics of gas distribution.

Distribution Pressure Control Subcommittee

Personnel: H. S. Harris, Los Angeles Gas and Electric Corp., chairman; A. R. Bailey, Coast Counties Gas & Electric Co.; W. E. Gentner, Southern Counties Gas Co.; W. L. McKee, Southern Counties Gas Co.; H. J. Keeling, Southern Counties Gas Co.; Otto Goldcamp, San Diego Consolidated Gas & Electric Co.; H. M. Goodro, Southern California Gas Co.; V. W. Harper, Portland Gas & Coke Co.; C. Ray, Los Angeles Gas & Electric Corp.; W. A. La Violette, Pacific Gas & Electric Co.

Program: 1. Effect of pressure on leakage: (a) Review of data already available; (b) Additional tests if available data not conclusive. 2. Estimates of monetary losses resulting from the carrying of excessive pressures on typical high-pressure distribution systems. 3. Methods and cost of pressure control on high-pressure systems. 4. Minimum pressures permissible on high-pressure distribution systems as fixed by: (a) House type regulators; (b) Service pipe and fittings; (c) Industrial appliances. 5. Advantages, if any, and reasons for varying pressures on low-pressure distribution systems. 6. Methods and cost of pressure control on low-pressure systems. 7. Limits to permissible range of pressures on low-pressure systems fixed by: (a) Service pipe and fittings; (b) House lines; (c) Appliance operation; (d) Safety.

Safe Gas Distribution Practice Subcommittee

Personnel: C. A. Renz, Los Angeles Gas and Electric Corp., chairman; H. M. Goodro, Southern California Gas Co.; J. B. Wright, Southern Counties Gas Co.; W. L. McKee, Southern Counties Gas Co.; R. A. Hoffman, Spokane Gas & Fuel Co.; N. K. Senatoroff, Los Angeles Gas and Electric Corp.; Allen Larry, Los Angeles Gas and Electric Corp.; W. A. Bahr, Pacific Gas & Electric Co.; E. T. Floyd, Pacific Gas & Electric Co.; C. P. DeJonge, San Diego Consolidated Gas & Electric Co.

Program: 1. Routine safety methods: (a) Manhole and vault surveys for explosive mixtures; (b) Surveys for leakage in basements in business districts; (c) Leakage surveys in streets. 2. Method for establishing responsibility for damage occurring from: (a) Explosions; (b) Damage to vegetation on account of leakage or construction; (c) Open excavations; (d) Improperly filled excavations; (e) Improperly placed danger signs and barricades. 3. Hazardous structures: (a) Gas lines and risers under buildings; (b) Live abandoned services in private property. 4. Safety devices and methods: (a) Pressure relief valves on low-pressure distribution systems; (b) Automatic gas shut-offs actuated by fire; (c) Curb cocks or valves; (d) Check valves or protective equipment on lines to blow torches using oxygen under pressure; (e) Pressure relief valve, control of fuel or combination of both, on water heaters; (f) Underground vaults ventilating system; (g) Barricades; (h) Tapping mains and services for extensions and connecting services; (i) Changing stopcocks under pressure;

(j) Blowing mains and services free of rust.

Appliance Servicing Subcommittee

Personnel: H. W. Geyer, Southern Counties Gas Co., chairman; George Porter, Southern California Gas Co. (Other members being contacted.)

Program: 1. Review of data already available, including report of last year's committee. 2. Service personnel training schools and methods used by several companies. 3. Analysis of relative cost of different appliance servicing policies. 4. Organization and routine for handling service work in: (a) Company serving a congested district; (b) Company serving widely scattered, small communities. 5. Problems in servicing appliances, particularly the latest automatic types which were not covered in previous reports.

Governors and Regulators Subcommittee

Personnel: W. A. La Violette, Pacific Gas & Electric Co., chairman. (Members being contacted.)

Program: 1. Regulator performance at low pressures. 2. Effective area of regulator diaphragms. 3. Capacities of various regulatory devices, controls, pipe fittings, etc.

Cast-Iron Pipe Service Connections Subcommittee

Personnel: W. E. Gentner, Southern Counties Gas Co., chairman. (Members being contacted.)

Program: Description, examination, testing and design of methods and devices for making service connections to: (a) New cast-iron pipe; (b) Old cast-iron pipe that has wall thickness reduced and weakened by corrosion and graphitization.

NATURAL GAS TRANSMISSION COMMITTEE

B. M. Laulhere, Southern California Gas Co., Chairman

Transmission Pipe Line Subcommittee

Personnel: R. L. Cook, Southern California Gas Co., chairman; A. B. Allyne, Southern Counties Gas Co.; Earl Jinnett, Southern Counties Gas Co.; Carl Summers, Southern Counties Gas Co.; P. E. Beckman, Pacific Gas & Electric Co.; F. E. Wilson, Pacific Gas & Electric Co.; M. T. Burton, Southern California Gas Co.; C. E. Pickup, Southern California Gas Co.; Wm. Pipkin, Southern Fuel Company; H. S. Harris, Los Angeles Gas and Electric Corp.

Program: 1. Internal corrosion of pipe lines. 2. Expansion and contraction of pipe lines. 3. Recent development in welding.

Compressor Stations Subcommittee

Personnel: C. S. Pool, Industrial Fuel Supply Co., chairman; P. E. Beckman, Pacific Gas & Electric Co.; Leal Davis, Pacific Gas & Electric Co.; W. K. Dodd, Southern California Gas Co.; B. E. Embry, Southern California Gas Co.; E. L. Ford, Industrial Fuel Supply Co.; T. C. Wallace, Southern Counties Gas Co.

Program: 1. Effect of gas engine piston design upon heat dissipation. 2. Efficiency of air filters for gas engines. 3. Use of metal spray on compressor piping.

Gas Measurement Subcommittee

Personnel: L. F. Reetz, Pacific Gas & Electric Co., chairman; P. E. Beckman, Pacific Gas & Electric Co.; E. C. Johnson, Pacific Gas & Electric Co.; R. M. Stewart, Pacific Gas & Electric Co.; L. Wollenberger, Coast Counties Gas & Electric Co.; Mr. Fisher, Coast Natural Gas Co.; L. P. W. Des Brisay, Los Angeles Gas and Electric Corp.; C. E. Pickup, Southern California Gas Co.

Program: 1. Critical flow of orifices. 2. Gas temperature measurement. 3. New types of flow meters and recording devices.

PRODUCTION COMMITTEE

C. P. Johnson, Puget Sound Light & Power Co., Chairman

Chemical Laboratory Methods Subcommittee

Personnel: J. M. North, Los Angeles Gas and Electric Corp., chairman; N. K. Senatoroff, Los Angeles Gas and Electric Corp.; C. E. White, San Diego Consolidated Gas & Electric Co.; A. B. Allyne, Southern Counties Gas Co.; M. T. Burton, Southern California Gas Co.; F. C. Jones, Pacific Gas & Electric Co.; C. S. Smith, Pacific Gas & Electric Co.; S. C. Schwarz, Portland Gas & Coke Co.; J. T. Roberts, Spokane Gas & Fuel Co.; Mathew Brown, B. C. Electric Railway Co., Ltd.

Program: 1. Microscopic qualitative analysis. 2. Gas analysis apparatus design. 3. Gas analysis procedures, with particular reference to natural gas. 4. Methods of pipe deposit analysis. 5. Determination of carbon bisulphide in manufactured gas. 6. Determination of small quantities of oxygen, sulphur, propane and butane in natural gas. 7. Determination of small amounts of combustibles in unknown gas samples. 8. Water analysis procedure.

Gas Holder Maintenance Subcommittee

Personnel: T. M. Kellert, Los Angeles Gas and Electric Corp., chairman; C. W. Beck, Los Angeles Gas and Electric Corp.; M. J. Ceraghino, Los Angeles Gas and Electric Corp.; O. L. Wrestler, Los Angeles Gas and Electric Corp.; H. M. Thomas, Northwest Cities Gas Co.; F. C. Hawks, Washington Gas & Electric Co.; W. H. Cohick, Pacific Gas & Electric Co.; W. E. Bradford, Northwest Cities Gas Co.

Program: 1. Comparative costs of maintenance and operation of waterless gas storage holders at various locations. 2. Making repairs to water sealed gas holders: (a) While in operation; (b) After settling of foundations; (c) With structural work out of alignment; (d) When lifts interfere with each other. 3. Use of non-drying oils and paints.

Coal Gas Subcommittee

Personnel: John Keillor, B. C. Electric Power & Gas Co., chairman. (Members being contacted.)

Program: 1. Detailed report and description of new Chamber-Oven plant at Vancouver, B. C. 2. Developments in coal gas plant procedure in Northwest.

Members of the Distribution Committee agreed to cooperate in affording to the secretary from time to time articles on distribution subjects for the MONTHLY.

Notice to Gas Engineers

ON page 521 of the December, 1932, issue of the MONTHLY, there appeared an article announcing the completion of the Mixed Gas Research investigation. The final summary report on this research is now available in accordance with the announcement which will be found on the next page.

Members of the Technical Section will recollect that at the last convention F. C. Weber, chairman of the Committee on Mixed Gas Research, urged all engineers who have the responsibility of keeping up to date with regard to mixed gas, to request from the company delegate of their company a copy of the Mixed Gas Research Report. The report itself is only furnished to the delegates of company members, and in order that the technical man may obtain a copy he should assure himself that the delegate of his company has received his copy. The A. G. A. Membership List will indicate the official company delegate.

Estimate Canadian Province Gas Supply Good for 12 Years

WITH a daily flow of 200,000,000 cu.ft. of gas being maintained, Turner Valley field, as a domestic gas supply for Calgary and nearby Alberta towns will last only twelve years, it has been estimated by the Alberta Turner Valley Gas Conservation Board on data obtained through tests conducted at wells over a period of several months, according to a report to the United States Department of Commerce from Trade Commissioner J. A. Embry, Vancouver, B. C.

The preliminary estimate placed the gas reserves at present in Valley wells at 599,929,248,000 cu.ft., it was stated. A previous estimate of reserves, made by F. P. Fisher, Alberta government consulting engineer, was between seven and eight hundred billion cubic feet. When the board began its tests last Spring, the open flow of approximately 400,000,000 cu.ft. daily was cut in half. The reduced flow is now in effect.

Permanent flow of the gas to be allowed will not be decided until public hearings before the board are held, some time early in the year. Objectives of the hearing and the conservation tests covered in the preliminary report aim at a voluntary pooling plan for all oil companies, with pro-rating of revenues from sale of gas with permission to sell what naphtha is derived from the curtailed gas flow.

TESTING LABORATORY

R. M. CONNER, Director — Managing Committee: J. S. DeHART, Jr., Chairman — N. T. SELLMAN, Secretary

Mixed Gas Research Final Summary Report Available to Member Company Delegates

THE recent publication of the final summary report on mixed gas research marks the successful completion of the most exhaustive study of this subject ever undertaken. This research program was carried on continuously during a period of more than five and one-half years at the Laboratory, under the direction of the Committee on Mixed Gas Research of the Technical Section.

The final bulletin—Report No. 689—is the last of a series of three which have been published at different intervals as various phases of the investigation were completed. This report has been given a permanent binding in an attractive leatherette cover and should prove a valuable addition to the library of every gas company. The information presented in the final bulletin is divided into three principal parts:

Part I. "Utilization of Various Mixtures of Natural Gases and Modified Manufactured Gas."

Part II. "Formula for Determining Limits in Mixing City Gases."

Part III. "General Summary of Results of Entire Investigation."

The information presented under Part I represents a summary of the results secured during the final phase of the investigation. It covers the use of producer gas in modifying manufactured gases for diluting natural gas, including blue-producer-natural gas mixtures, coke oven-producer-natural gas mixtures, and reformed natural-producer-natural gas mixtures; results of tests with mixtures of natural gas and modified manufactured gases to obtain increased flexibility in plant operation, and dilution of 1000 B.t.u. natural gas with blue gas and with coke oven gas.

Part II shows the development of an impirical formula which permits calculation of acceptable limits for mixing various gas. This formula was derived as the result of an exhaustive study of practically all detailed data accumulated during the course of the entire investigation. Consideration also is given to the practical application of the formula and examples are presented illustrating its use.

A general summary of the results secured during the investigation which involved conclusion of approximately 175,000 separate tests and determinations using 250 different gas mixtures is presented under Part III. This summary, although brief, nevertheless brings out the salient points disclosed by the entire study. The subjects discussed include variations in factors of gas service with domestic and similar industrial appliances, including variations in specific gravity, heating value, chemical composition, and gas pressure; variations in gas service with industrial appliances, and utilization of butane, including the use of butane-air and butane-enrichment of various gases. A more complete and detailed summary of the results of the first two phases of the research is given in Reports No. 597 and No. 645.

A copy of the final bulletin—Report No. 689—as well as copies of the other two bulletins mentioned may be secured by accredited delegates of member companies upon application to the Managing Director, American Gas Association, 420 Lexington Avenue, New York, N. Y.

Manual Revised

THE increased number of committees engaged directly or indirectly in the preparation of A.G.A. Requirements for various types of gas appliances, appurtenances, accessories and controls, coupled with the fact that the A.G.A. Approval Requirements Committee is now a Sectional Committee of the American Standards Association, made it advisable to revise and bring up-to-date the A. G. A. Manual of Organization and Procedure for A.G.A. Requirements Committees. Consequently, alterations to the original manual published in 1928 were made, and the revised booklet published early last month.

Copies of the revised manual have been mailed to members of all A.G.A. Committees associated with the Testing Laboratory. Others interested in this booklet may secure copies upon application to the Director of the Testing Laboratory, American Gas Association, 1032 East 62nd Street, Cleveland, Ohio.

A.G.A. Requirements Approved As American Standard

IT is gratifying to report the approval of seven sets of A.G.A. requirements as American Standard by the American Standards Association. Two of these standards, the A.G.A. Approval Requirements for Hotel and Restaurant Ranges, and A.G.A. Approval Requirements for Private Garage Heaters, are new additions to the line of appliance requirements of the American Gas Association.

The requirements approved as American Standard include:

Title	*Date Approved by A. S. A.*
A. G. A. Requirements for Installation of Conversion Burners in House Heating and Water Heating Appliances	Jan. 4, 1933
A. G. A. Approval Requirements for Private Garage Heaters	Dec. 28, 1932
A. G. A. Approval Requirements for Hotel and Restaurant Ranges	Dec. 28, 1932
A. G. A. Approval Requirements for Clothes Dryers	Dec. 28, 1932
A. G. A. Approval Requirements for Incinerators	Dec. 28, 1932
A. G. A. Approval Requirements for Flexible Gas Tubing	Dec. 28, 1932
A. G. A. Approval Requirements for Gas Heated Ironers	Dec. 28, 1932

The above standards were recently published in final form and distributed to all member companies of the American Gas Association. Additional copies of these standards may be secured from the American Gas Association Testing Laboratory, 1032 East 62nd Street, Cleveland, Ohio, at 20 cents per copy by members of the American Gas Association and at 40 cents per copy by non-members, except for the requirements for Flexible Gas Tubing which are available at 15 cents and 30 cents per copy, respectively.

Sales Divisions Combined

THE domestic and refrigeration divisions of the sales department of the Consolidated Gas Company of New York were combined on January 3, 1933, under the direction of George Ostlund, general sales manager, according to an announcement by N. T. Sellman, Director of Sales and Utilization and Assistant Secretary.

Julian Lobenstein has been made manager of the new division, which will handle sales of gas appliances for domestic use.

Monthly Summary of Gas Company Statistics

FOR MONTH OF NOVEMBER, 1932

Issued January, 1933, by the Statistical Department of the American Gas Association
420 Lexington Avenue, New York, N. Y.

PAUL RYAN, Statistician

COMPARATIVE STATISTICS OF 200 MANUFACTURED GAS COMPANIES FOR THE MONTH OF NOVEMBER, 1932

	Month of November			Eleven Months Ending November 30		
	1932	1931	Per cent Increase	1932	1931	Per cent Increase
Customers						
Domestic	8,586,175	8,953,049	— 4.1			
House Heating	54,280	49,875	8.8			
Industrial and Commercial	398,957	400,883	— 0.5	*See November*		
Miscellaneous	7,237	6,587	—			
Total	9,046,649	9,410,394	— 3.9			
Gas Sales (MCF)						
Domestic	20,131,722	21,844,659	— 7.8	230,101,233	239,283,183	— 3.8
House Heating	1,802,923	1,371,843	31.4	16,312,562	15,448,318	5.6
Industrial and Commercial	5,862,304	6,535,725	—10.3	65,375,728	74,821,577	—12.6
Miscellaneous	198,770	200,685	—	1,913,589	1,955,903	—
Total	27,995,719	29,952,912	— 6.5	313,703,112	331,508,981	— 5.4
Revenue (Dollars)						
Domestic	23,264,538	25,359,593	— 8.3	268,674,105	278,972,392	— 3.7
House Heating	1,240,063	1,045,091	18.7	11,755,127	12,011,113	— 2.1
Industrial and Commercial	5,019,587	5,677,039	—11.6	56,980,184	64,952,951	—12.3
Miscellaneous	142,400	174,182	—	1,355,058	1,537,136	—
Total	29,666,588	32,255,905	— 8.0	338,764,474	357,473,592	— 5.2
Gas Produced and Purchased (MCF)						
Gas Produced						
(a) Water Gas	13,359,610	13,201,812	1.2	143,661,085	162,273,667	—11.5
(b) Retort Coal Gas	2,153,857	2,590,394	—16.9	24,895,602	29,168,563	—14.6
(c) Oil Gas	394,588	755,900	—47.8	6,417,748	6,867,567	— 6.5
(d) Coke Oven Gas	4,009,869	4,430,438	— 9.5	43,263,607	48,995,559	—11.7
(e) Reformed Oil Still Gas	413,025	398,518	3.6	4,295,034	4,058,136	5.8
(f) Total Gas Produced	20,330,949	21,377,062	— 4.9	222,533,076	251,363,492	—11.5
Gas Purchased						
(a) Coke Oven Gas	7,967,782	8,426,207	— 5.4	82,928,503	97,039,552	—14.5
(b) Oil Still and Natural Gas	4,354,262	2,505,503	—	41,427,518	7,521,734	—
(c) Total Gas Purchased	12,322,044	10,931,710	12.7	124,356,021	104,561,286	18.9
Total Gas Produced and Purchased	32,652,993	32,308,772	1.1	346,889,097	355,924,778	— 2.5

COMPARATIVE STATISTICS OF 200 NATURAL GAS COMPANIES FOR THE MONTH OF NOVEMBER, 1932

Customers						
Domestic (Including House Heating)	4,227,344	4,313,328	— 2.0			
Commercial	235,985	227,509	3.7			
Industrial	16,482	16,035	2.8			
Main Line Industrial	2,545	2,950	—13.7	*See November*		
Miscellaneous	1,575	1,768	—			
Total	4,483,931	4,561,590	— 1.7			
Gas Sales (MCF)						
Domestic (Including House Heating)	21,293,903	21,194,102	0.5	223,751,112	236,905,606	— 5.6
Commercial	4,260,778	3,453,252	23.4	38,757,729	38,124,202	1.7
Industrial	14,758,949	14,746,491	0.1	152,995,121	170,048,746	—10.0
Main Line Industrial	14,088,615	15,702,456	—10.3	128,040,287	158,655,291	—19.3
Miscellaneous	215,503	160,018	—	2,212,587	1,945,459	—
Total	54,617,748	55,256,319	— 1.2	545,756,836	605,679,304	— 9.9
Revenue (Dollars)						
Domestic (Including House Heating)	14,439,077	14,781,044	— 2.3	155,672,809	163,977,492	— 5.1
Commercial	1,918,083	1,688,385	13.6	18,754,087	19,062,190	— 1.6
Industrial	3,005,625	3,264,500	— 7.9	32,135,707	39,394,658	—18.4
Main Line Industrial	1,671,301	1,932,661	—13.5	15,222,659	20,212,806	—24.7
Miscellaneous	57,458	50,515	—	662,025	571,937	—
Total	21,091,544	21,717,105	— 2.9	222,447,287	243,219,083	— 8.5

Gas Utility Revenues Down 6 Per Cent in November

REVENUES of manufactured and natural gas utilities totaled $50,758,132 in November, a decline of 6 per cent from the same month of the preceding year, according to reports from companies representing over 90 per cent of the utility distribution of manufactured and natural gas.

As of November 30, the customers of the reporting companies aggregated 13,530,580, as compared with 13,971,984 on the corresponding date of the preceding year, indicating a loss of 440,000 customers during the twelve-month period.

The manufactured gas companies reported revenues of $29,666,588 for November, a drop of 8 per cent from a year ago, while revenues of the natural gas concerns totalled $21,091,544 or approximately 3 per cent less than for November, 1931.

Sales of manufactured gas reported for November totalled 27,995,719,000 cubic feet, a decline of 6.5 per cent, while natural gas sales for the month were 54,617,748,000 cubic feet, a drop of 1.2 per cent.

This decline in sales volume appeared to characterize most sections of the country, although not to the same extent. In New England November sales were 7.9 per cent under a year ago, while in the Middle Atlantic states the decline amounted to 5.4 per cent. The curtailment in manufactured gas sales was especially pronounced in the East North Central states, comprising Illinois, Indiana, Michigan, Ohio and Wisconsin. Total sales for November were down 7.8 per cent from a year ago, the result in large part of a drop of nearly 14 per cent in sales to industrial-commercial users.

Publication of New Requirements

During the past few years the matter of proper draft control for domestic gas appliances has been receiving an increasing amount of attention. Several subcommittees on A.G.A. Approval Requirements incorporated in their respective standards certain performance, and in some cases, construction, requirements for draft hoods. Although such requirements tended to insure proper protection to the appliance against adverse chimney conditions when equipped with the particular hood tested, they did not signify that such a draft hood would be satisfactory for any other type of appliance or installation.

Under this arrangement draft hoods were not tested as such but only as an integral part of a complete appliance with the result that the manufacturer of the hood had no assurance that his draft hood would perform satisfactorily when used under other circumstances. The increased use of gas conversion burners in house heating installation and the advantages of using draft hoods on such installations increased the importance of more specific information on devices of this character.

Largely as a result of such conditions, a subcommittee of the A.G.A. Approval Requirements Committee, A.S.A. Sectional Committee, Project Z-21, was appointed in 1932 to draw up suitable standards for draft hoods. These requirements were completed late in 1932 and were recently published in tentative form and distributed to the gas industry for criticism.

In line with the usual policy of the Association in regard to the periodic revision of requirements, recommended revisions to (1) the American Recommended Practice A.G.A. Approval Requirements for Gas Ranges, (2) A.G.A. Approval Requirements for Hot Plates and Laundry Stoves, (3) Space Heaters and (4) Gas Water Heaters, were completed by the respective subcommittees, approved, printed, and submitted to the industry for criticism in December.

Some of the more important changes in these requirements involve the addition of requirements for insulated oven gas ranges, and the inclusion of construction and performance specifications for space heaters, water heaters, and for hot plates and laundry stoves designed for use with butane-air gas and for propane gas. Requirements for propane gas sets are also included in each set of the above mentioned approval requirements.

The A.G.A. Approval Requirements Committee, A.S.A. Sectional Committee, Project Z-21, and its subcommittees are glad to receive the comments and criticisms of all interested groups and individuals on these standards. Such comments should, however, be forwarded to the chairman of the A.G.A. Approval Requirements Committee, American Gas Association, 420 Lexington Avenue, New York, N. Y., on or before February 15, 1933, in order to receive due consideration by all interested committees.

Draws Contrast Between the Old and the New

AN interesting contrast between the "good old days" and modern times was drawn by Miss Ruth B. Soule, home service director of The Brooklyn Union Gas Company, Brooklyn, N. Y., in a recent article which she wrote for publication in a number of the weekly newspapers in Brooklyn and Queens, New York.

The article cites the remarkable advance made in recent years in the science of keeping foods fresh and wholesome during warm weather.

"It isn't so many years since we kept our milk and butter down the well and drew them up as we needed them," she writes. "Between-times the milk grew warm and became far from wholesome. Meats became strong very soon and, consequently, canned or salted meats and chicken were used almost exclusively. Lettuce, radishes and cucumbers were to be had only when they could be picked in the garden, and during the rest of the year cabbage, carrots and potatoes were the household mainstays. Home-canned vegetables were not used extensively until a generation ago. The scarcity of vegetables during the long winter made spring tonics necessary. You remember sulphur and rhubarb!"

After picturing the handicaps encountered by the homemakers of the past, Miss Soule brings her story up to date, concluding with the brief description of the advantages enjoyed by the modern housewife in automatic refrigeration.

"With automatic refrigeration came true economy in storing foods. Marketing may now be done only twice a week, and substantial economies effected by taking advantage of food bargains and by freedom from waste. Cream may be purchased by the pint or quart, with marked reduction in price. A meat supply for several days may be bought at one time, thus reducing the cost per meal. The low cost of automatic refrigeration, coupled with the saving in food, plus the convenience in marketing, has brought automatic refrigeration into the class of necessities rather than luxuries."

The article is one of those which Miss Soule writes each week on the handling and cooking of foods, which are published in various community newspapers. Each article is accompanied by one or more timely recipes.

A. P. Brill Elected President of Ruud Company

THE board of directors of the Ruud Manufacturing Company, Pittsburgh, Pa., has announced the election of A. P. Brill, formerly vice-president and general manager, to the office of president, left vacant by the death of Edwin Ruud.

College Largest Consumer of Natural Gas

BETWEEN 50,000,000 and 60,000,000 cu.ft. of gas are expected to be used annually in the heating plant of Central Teachers College, Mount Pleasant, Mich., which was converted to gas recently. Engineers estimate a cut of 20 per cent in heating costs.

Officials of the Gas Corporation of Michigan say the college is the largest single consumer of Michigan natural gas.

The heating plant load has increased the market for natural gas about 40 per cent and will result in the company adding two or more wells to its Vernon field. It now draws from three Vernon wells.

McCarter Medals Awarded

THOMAS N. McCARTER Medals, offered through the American Gas Association by President McCarter, of the Public Service Electric and Gas Company of New Jersey, recently have been awarded for the successful application of the prone pressure method of resuscitation as follows:

John Scannell

John Scannell, an employee of the Lawrence Gas and Electric Company, Lawrence, Mass., in the electric meter department, was awarded a medal and certificate for life saving. He performed the act of heroism which won him the award on July 5, 1932. He applied the prone pressure method of resuscitation to a gas asphyxiation victim for about twenty minutes before any signs of life were apparent. After fifteen minutes more of resuscitation, the victim was breathing normally. Many employees were gathered for the presentation of the award, which was a part of the program of the annual employees' Christmas party.

M. J. Lavelle

Martin J. Lavelle, an employee of the Laclede Gas Light Co., St. Louis, Mo., was awarded a McCarter medal for saving the life of a man who was overcome by gas. Mr. Lavelle, a fitter, was sent to repair a gas leak. After being told by neighbors that tenants of a flat were not at home, Lavelle called the police and forced an entrance where they found a man unconscious on the bed. Lavelle administered treatment until the victim was taken to the hospital, where he recovered.

E. F. Dressel

Edward F. Dressel and Martin A. Zajac, employees of the service department of the Utica Gas and Electric Company, were honored jointly by receiving McCarter medals. Presentation of the awards was made by A. Augustus Low, executive vice-president of the company, before a group of more than 300 employees. Quick and untiring efforts of these men resulted in saving two lives.

M. A. Zajac

A gas leak was reported and an investigation was made by Mr. Zajac who traced the leak to an apartment. Unable to gain admittance, he immediately secured the assistance of Edward F. Dressel and upon forcing their way into the apartment, found an elderly couple overcome by gas. The prone pressure method was applied and continued until the patients had recovered consciousness and were sent to the hospital.

Appliance Inspection and Adjustments

(Continued from page 40)

of the company will never have any record or knowledge of what our organization is doing. If we then claim service by the gas company as one of the outstanding advantages in the use of industrial gas, this is an empty phrase as far as the vital parties are concerned. When, however, a long record of work performed is in the hands of responsible officials, the meaning of our claim takes on a different aspect.

Robert E. Livingston

ROBERT E. LIVINGSTON, director of information of the Consolidated Gas Company of New York, died suddenly, January 29, in Roosevelt Hospital, New York, N. Y. Before joining the Consolidated Company, he was for years one of New York's best known reporters and war correspondents, having served on the staff of the old *New York Herald*. In addition to serving as director of information, Mr. Livingston was editor of *Gas Logic*, one of the Consolidated Gas Company's publications.

His funeral took place January 31. Honorary pallbearers were George B. Cortelyou, president of the Consolidated Gas Company; Livingston Gifford, George Gordon Battle, Colonel Oscar H. Fogg, vice-president of the Consolidated Gas Company; Frank W. Smith, president of the New York Edison Company; Malcolm M. Graham, James Blaine Walker, secretary of the Transit Commission; C. Bradley Hunt, Cyril Nast, advertising manager for the New York Edison Company; Albert E. Stratton, Charles Sims and James Page.

Also, Frederick T. Ackermann, Robert H. Lyman and Magistrate Guy Van Amringe; Merrel P. Callaway and Francis H. Sisson, vice-presidents of the Guaranty Trust Company; G. Willard Bonte, Charles M. Lincoln and Marsden B. Candler.

Besides membership in other organizations, Mr. Livingston was a member of the American Gas Association.

Terra Cotta Makers Find Gas Best Fuel to Meet Demand for Color

(Continued from page 55)

given over to the manufacture of sewer pipe, flue lining, red drain tile, red roof tile, etc., and there are 34 gas-fired kilns for the burning of these products. Of these, 30 range from 32 to 34 ft. in diameter, each of the smaller ones being fired with 10 gas burners and the larger with 12, all of the atmospheric type. These kilns are of the down draft, open fired type. The four remaining kilns are rectangular in shape, each being 50 ft. long and 17 ft. wide and fired with twelve gas burners.

Associations Affiliated with A. G. A.

Canadian Gas Association
Pres.—Hugh McNair, Winnipeg Electric Co., Winnipeg, Man.
Sec.-Tr.—G. W. Allen, 21 Astley Avenue, Toronto.

Empire State Gas and Electric Association
Pres.—Alfred H. Schoellkopf, Niagara Hudson Power Corp., Buffalo, N. Y.
Chairman, Gas Section—A. M. Beebee, Rochester Gas & Electric Corp., Rochester, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.

Illinois Public Utilities Association
Pres.—Bernard J. Mullaney, The Peoples Gas Light & Coke Company, Chicago, Ill.
Sec.—J. R. Blackhall, 617 Public Service Bldg., Springfield, Ill.

Indiana Gas Association
Pres.—R. S. Brunner, Indiana Gas Utilities Co., Richmond, Ind.
Sec.-Tr.—P. A. McLeod, New Castle, Ind.

Michigan Gas Association
Pres.—J. E. Spindle, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.

Maryland Utilities Association
Pres.—F. A. Mitchell, Eastern Shore Public Service Co., Salisbury, Md.
Sec.—D. E. Kinnear, 803 Court Square Bldg., Baltimore, Md.

Mid-West Gas Association
Pres.—W. E. Derwent, Geo. D. Roper Corp., Rockford, Ill.
Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.

Missouri Association of Public Utilities
Pres.—A. E. Bettis, Kansas City Power and Light Co., Kansas City, Mo.
Sec.-Tr.—N. R. Beagle, Missouri Power & Light Co., Jefferson City, Mo.
Asst. Sec.—Jesse Blythe, 103 West High St., Jefferson City, Mo.

New England Gas Association
Pres.—I. T. Haddock, Cambridge Gas Light Co., Cambridge, Mass.
Ex. Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.
Chairman, Operating Div.—H. G. Taylor, Lawrence Gas & Electric Co., Lawrence, Mass.
Sec., Operating Div.—R. S. Carter, Malden & Melrose Gas Light Co., Malden, Mass.
Chairman, Sales Div.—J. J. McKearin, Lowell Gas Light Co., Lowell, Mass.
Sec.-Tr.—R. D. Stuart, Jr., Fall River Gas Works Co., Fall River, Mass.
Chairman, Industrial Div.—C. S. Hilton, The Pawtucket Gas Co., Pawtucket, R. I.
Sec.-Tr., Industrial Div.—W. S. Anderson, Boston, Mass.
Chairman, Accounting Div.—G. S. Lees, New Haven Gas Light Co., New Haven, Conn.
Sec.-Tr., Accounting Div.—C. D. Perkins, Malden & Melrose Gas Light Co., Malden, Mass.
Chairman, Manufacturer Div.—A. M. Slattery, The Hoffman Heater Co., Boston, Mass.
Sec.-Tr., Manufacturers Div.—J. H. McPherson, James B. Clow & Sons, Boston, Mass.

New Jersey Gas Association
Pres.—J. D. Alden, Jersey Central Power & Light Co., Asbury Park, N. J.
Sec.-Tr.—H. E. Cliff, Public Service Electric & Gas Co., Newark, N. J.

Ohio Gas and Oil Men's Association
Pres.—L. K. Langdon, Union Gas & Electric Co., Cincinnati, Ohio.
Sec.-Tr.—Wm. H. Thompson, 811 First National Bank Bldg., Columbus, Ohio.

Oklahoma Utilities Association
Pres.—R. J. Daugherty, The Empire Companies, Bartlesville, Okla.
Mgr.—E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—Harry L. Masser, Los Angeles Gas and Electric Corp., Los Angeles, Calif.
Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—Lewis W. Heath, Pennsylvania Power & Light Co., Williamsport, Pa.
Sec.-Tr.—Frank W. Lesley, Pennsylvania Gas & Electric Co., York, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—J. French Robinson, Lycoming Natural Gas Co., Pittsburgh, Pa.
Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.

Southern Gas Association
Pres.—J. J. Brennan, Memphis Power & Light Co., Memphis, Tenn.
Sec.-Tr.—S. L. Drumm, New Orleans Public Service Inc., New Orleans, La.

Southwestern Public Service Association
Pres.—Knox Lee, Southwestern Gas & Electric Co., Marshall, Texas.
Sec.—E. N. Willis, 1801 No. Lamar St., Dallas, Texas.

The Public Utilities Association of Virginia
Pres.—T. Justin Moore, Va. Elec. & Power Co., Richmond, Va.

Wisconsin Utilities Association
Pres.—E. J. Steinberg, The Milwaukee Electric Railway & Light Co., Milwaukee, Wis.
Exec. Sec.—J. N. Cadby, 135 West Wells St., Milwaukee, Wis.

International Gas Conference
AND
Fifteenth Annual Convention
of the American Gas Association
◆
Chicago, Ill.
Week of
September 25, 1933

Personnel Service

SERVICES OFFERED

Graduate **engineer** experienced in design and operation by-product coke plants, gas plants and distribution systems in U. S. and Canada. Capable taking charge or can fit into present organization. Experience should make this man valuable where training, strong personality and honesty count. **664.**

Manager—experienced in manufactured and natural gas and electricity with splendid new business record. Full particulars will be furnished on request. **665.**

Sales engineer—qualified for sales and management of house heating department in all its branches of service. Experience also covers industrial steam boiler application and large volume water heating. General and technical knowledge. Married. **666.**

Sales executive. Man of unusual experience in sales management and merchandising in various lines; forceful convincing personality; knows intimately most successful methods of sales promotion and personnel direction, market analysis sources and planning including budget sales production; experienced advertising supervision; special knowledge appliances; married, American, university trained, 47 years. **667.**

Gas engineer (27) engineering graduate, married, desires position with large gas company as assistant to plant or distribution superintendent, or can take complete charge of operation of small gas company. Excellent record of results obtained and have had extensive experience with practically all phases of gas operation. **668.**

Gas engineer (35) technically trained, thirteen years operating coal, water and producer gas plants and doing research on coal carbonization and coke utilization. **672.**

Industrial **gas engineer** since 1905. House heating, power plants, industrial furnaces, with artificial gas, natural gas, oil, producer and blast furnace gases. Fuel efficiency engineer for steel plants, period of six years in United States, Canada and Europe. Five years' agency for oil burners. Sales and engineering experience. **673.**

Technical manager, superintendent or engineer, with broad experience of twenty years, covering manufactured and natural gas transmission, re-forming, blending, change-over, high- and low-pressure distribution and lay-out. Familiar with brushing up sluggish activity or run down properties of holding company. Sales service and utilization. Aggressive. **674.**

Mechanical and electrical graduate engineer, nine years' miscellaneous public utility and manufacturing experience, embracing design and operation; last four years in design, installation and sales work on gas-operated air conditioners, dehydration and purification units and kindred equipment. Recently in charge of air-conditioning work which included highly original research. **675.**

Industrial gas: Fuel engineer and salesman, with exceptional training and unusually broadening experience, now employed, seeks management of industrial department for large utility or of directing institutional work in heat utilization. **676.**

Successful record of sixteen years in property **management** and sales promotion. Several years in Latin American Countries; speak Spanish and understand customs of those countries. Age 37—married. Available to go anywhere. **677.**

Manufacturer's Agent: Old and established coal and gas range manufacturer, having discontinued gas range manufacture desires agency Metropolitan New York for complete line ranges, combinations, water heaters, other gas appliances. Have complete sales organization, showroom, warehouse, shipping and servicing facilities. Valuable utility contacts including jobbers, dealers and real estate operators. **678.**

Heating engineer—experienced in all kinds of house heating equipment, including conversion burners, gas boilers, gas furnaces as applied to gravity and forced air heating, including air conditioning. Capable of handling both sales and engineering. **679.**

SERVICES OFFERED

Accountant experienced four utilities, **gas,** electric, street railway, omnibus; college graduate; age 39; thorough knowledge all phases utility accounting; secretary-treasurer comptroller, eleven years; purchasing agent, eight years; wishes assignment operating company or travelling auditor; will prove merit for advancement. **680.**

Engineer experienced in domestic and industrial house and water heating, domestic appliance sales, air conditioning, can submit plans and achievements in creative or competitive selling ability. Utility and manufacturer experience with large following among dealers and utility companies east of Chicago. Twenty-four years' experience. **681**

Safety engineer, technical graduate, familiar with all phases of utility accident prevention program, compensation, public liability, automobile and fire experience over a period of a few years. Qualified to assist a utility or manufacturer to lower insurance costs through efficient safety work. **682**

Foreman, experienced in manhole and conduit construction; also in 3-4 wire cable and emergency maps and records. Eleven years' experience in public utility work. **683.**

Executives attention! With engineering corps reduced to handle routine problems only, why postpone the solution of that special problem involving considerable investigation when you can temporarily employ a thoroughly trained **gas engineer** and executive at present unemployed. Have had sixteen years of operating and engineering experience in responsible positions. **684.**

Engineer—seven years' experience testing and developing gas and electrical appliances. **685.**

Manufacturer's agent desires line of gas ranges, coal and gas combinations, heaters, and so forth, for the Metropolitan area, on commission basis. Has twelve years' experience selling department stores, furniture stores, hardware and plumbing supply houses. **686.**

Natural gas **sales manager,** technical graduate, with eighteen years' experience in domestic, commercial, industrial and house heating sales, desires employment where future opportunities are good. Experience also includes manufactured gas and electric utility sales, rates, publicity, etc. Has had close contact with all operating and most management problems. **687.**

Engineering graduate with considerable experience in **sales engineering** work for one of the larger electrical manufacturers, desires a connection in central Illinois with the heating department of gas-electric or straight gas utility company. **688.**

Graduate engineer (42) soundly trained as gas company cadet followed by wide combination gas and electric company experience, up through engineering branches to division manager large organization. Has national viewpoint, could be very useful in holding company or **assistant** to busy executive. Can create and maintain good public relations. **689.**

Manager, aggressive, tactful, twenty years' experience organizing, consolidating, financing, managing public utility properties, improving operating efficiency, supervising construction, designing rates, directing sales organizations, handling commercial and public relations, etc. Trained in business administration, intimate with every corporate detail, can quickly visualize opportunities for development and increase earnings. **690.**

Sales engineer—eight years' continuous experience in domestic refrigeration, last five with manufacturer of gas refrigerator; specialist in training salesmen for gas companies and dealers in actual field work in principal eastern cities. Qualified to assume complete responsibility for manufacturer's sales cooperation with progressive gas utilities, compensation by results. Married. **691.**

SERVICES OFFERED

Operating and construction **superintendent** with twenty years' experience capable in coal, water and oil gas operation. Competent in cast-iron or steel, low- or high-pressure distribution and transmission. Familiar with shop, service and sales departments. Able to get results. **692.**

Industrial engineer with sound engineering background and many years' experience designing, selling and installing industrial gas equipment. Have been particularly successful in converting large newspaper plants, coffee roasting companies, foundries and heat treating plants from coal to gas. **693.**

Successful gas company sales manager with Middle West and Southern experience followed by manufacturers' representation, desires a connection as utility **sales manager** or property manager. **694.**

POSITIONS OPEN

Gas appliance salesmen wanted. Those having utility sales experience preferred. We have an unusually attractive proposition for men who can show a clean, business producing record. We virtually put you in business for yourself. Line now established and in active demand, assuring an income from the outset. Stocks are carried and sales financed. No investment required. Straight commission. No drawing account. Contracts now being made. Desirable openings available in practically every state. **0249.**

An unusual business opportunity: Nationally known manufacturer of gas fired heating and air conditioning equipment is interested in making connections for Ohio and Western Pennsylvania territories. Established organizations dealing in mechanical lines or individuals having necessary qualifications will be considered. Large profits possible in an industry with a most attractive future. **0251.**

Experienced **salesman** who can sell and also manage branch serving large territory with modern ranges, burners and miscellaneous equipment. Prefer man between 30 and 40 who can cultivate manufactured and natural gas companies and jobbing accounts. Living salary plus commission. **0254.**

LIMITED TO FIFTY WORDS

Fifty words are all too brief but that is all space requirements permit each SERVICES OFFERED advertiser. The personal qualifications, experience and knowledge of men available (necessary information when considering capacity to fill a vacancy) have been condensed to the irreducible minimum. Each advertiser has therefore supported his claims by means of an exceedingly comprehensive and detailed confidential classification record arranged so that it presents a singularly complete picture of the individual.

Lists of capable men for all branches of the industry can be readily and promptly inspected; all negotiations are handled in extreme confidence. Additional information can also be secured so that a "short list" may be prepared for consideration prior to entering into direct negotiations. This service is yours for the asking and there is no expense connected therewith.

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